# *Student Portfolio*

*Fifth Edition*

# Developmental Math I
# MAT 0018C

**VALENCIA COLLEGE**

**Insert** the **syllabus** provided by your instructor in place of this page.

# Timeline for Developmental Math I (MAT0018C )

*Textbook: PreAlgebra by Elayn Martin-Gay, 5th Edition, (VCC custom version)*

| ***Week*** | ***Topics*** | ***Textbook Chapters / Activity*** |
|---|---|---|
| 1 | Tips for Success. Standard Notation. Adding, Subtracting, Rounding, and Estimating Whole numbers. Perimeter. Multiplying and Dividing Whole numbers. Area. Solving equations. Exponential Notation. Order of Operations. Introduction to Variables. Algebraic Expressions and Equations. | Introduce: Course, Portfolio, and Course Compass.<br>Lab Orientation / Math Center Visitation<br><br>***Cover Chapter 1 (all sections)***<br><br>Activity: Learning Styles |
| 2 | | |
| 3 | Addition, Subtraction, Multiplication and Division of Integers. Order of Operations. Solving Equations using the Addition and Multiplication Properties. | ***Cover Chapter 2 (all sections)*** |
| 4 | | |
| 5 | Simplifying Algebraic Expressions. Review Solving Equations using the Addition and Multiplication Properties. Solving Linear Equations. Problem Solving. | ***Cover Chapter 3 (all sections)*** |
| 6 | | |
| 7 | Introduction to Fractions and Mixed Numbers. Factors and Simplest Form. Multiplication, Division, Addition, and Subtraction of Fractions. Complex fractions and review of Order of Operations. Mixed Numbers. Solving Equations containing Fractions. | ***Cover Chapter 4 (all sections)***<br><br>Activity: Home Improvement activity |
| 8 | | |
| 9 | Introduction to Decimals. Addition, Subtraction, Multiplication, and Division of Decimals. Fractions, Decimals, and Order of Operations. Solving Equations containing Decimals. | ***Cover Chapter 5 (sections 1, 2, 3, 4, 5, 6)***<br>***<u>SKIP section5.7</u>*** |
| 10 | | |
| 11 | Percent, Decimals and Fractions. Solving Percent Problems with Equations. Applications of Percent. Percent and Problem Solving using Interest. | ***Cover Chapter 7 (sections 1, 2, 4, 5, 6)***<br>***<u>SKIP section 7.3</u>***<br><br>Activity: Financing Your Ride |
| 12 | | |
| 13 | Addition and Subtraction of Polynomials. Multiplication Properties of Exponents. Multiplying Polynomials. Area and Volume. | ***Cover Chapter 9.3 only.***<br>***Cover Chapter 10 (sections 1, 2, 3)***<br>***<u>SKIP section 10.4</u>*** |
| 14 | | |
| 15 | Final Exit Exam | |

# *Developmental Math I Student Portfolio*

This term, you will be required to keep a working portfolio in a three-ring binder. This will help you stay organized while training you to use your resources effectively; a skill that you can utilize in any class. You will be graded on your organization and completion of this portfolio at each test. Let's start by setting up the portfolio for your particular class.

First, behind the first page, replace the page that says 'Insert Syllabus' with the **syllabus** provided by your instructor.

Then, use the given **tabs** to separate the portfolio into the **sections** below. Insert the tab in front of the given page number.

1) **Lecture Notes p. 7**
   You will keep your classroom lecture notes and a reflection for each chapter in this section. Your notes should be dated and titled according to each lesson and should be kept in order. In your notes, you should include rules, examples, formulas and tips given by your instructor. See page 9 for more details.

2) **Homework p. 25**
   You will keep evidence of your homework and a record of your homework grades in this section. Whether your instructor assigns textbook problems or online homework, you are required to keep a written artifact of the assignment for each section. You should copy each problem exactly as it appears in the assignment and show all of the work necessary to answer the question. Each new assignment should be started on a new sheet of paper; labeled with the date, section, and page number, and kept in order. See page 27 for more details.

3) **Activities & Labs p. 29**
   You will keep all activities that are introduced in the classroom or lab component along with a record of your activity grades in this section. You will complete at least one activity for each chapter. Some activities are found online in Blackboard while others are provided in this section. See page 31 for more details.

4) **Tests** and **Corrections p. 53**
   This section will hold your tests, test corrections, and a record of your test grades. You are required to complete a set of corrections after each test. See page 61 for more details.

5) **Final Exit Exam Review Packet p. 55**
   This section contains a packet to help you review for the Final Exit Exam. See page 65 for details. All material in the Final Exit Exam Review packet must be completed before the first attempt of the Final Exit Exam as well as for an opportunity for a retake.

# Portfolio Assessment

**10% of overall grade**

Students should maintain a neat, organized, and complete portfolio. Professors will evaluate and score each student's portfolio on the day of every test. Each box is scored out of 5 points, with the exception of the Final Exit Exam Review Packet, which is worth 30 points. The first test's portfolio assessment is not worth as much as the others since test corrections for test one will be assessed during test two, and so on. Professor comments and suggestions for improvement should be written on the next page.

| 5 points each box | Ch. 1 | Ch. 2 | Ch. 3 | Ch. 4 | Ch. 5 | Ch. 6 | Ch. 7 | F E E Review Packet |
|---|---|---|---|---|---|---|---|---|
| **Notes Completion:** points should be deducted for missing sections and incomplete headings | | | | | | | | x |
| **Homework Completion:** points should be deducted for missing sections and incomplete headings | | | | | | | | x |
| **Chapter Reflection:** points should be deducted for missing portions of the assignment | | | | | | | | x |
| **Neatness and Organization:** points should be deducted for sloppiness and misfiled papers | | | | | | | | x |
| **Test Corrections:** points should be deducted for missing portions of this assignment | x | | | | | | | x |
| **Score out of:** | **20** | **25** | **25** | **25** | **25** | **25** | **25** | **30** |
| **Running Score out of:** | **20** | **45** | **70** | **95** | **120** | **145** | **170** | **200** |

**NOTE**: In Blackboard you have an OVERALL grade sheet to keep you up to date.

# *Portfolio Comments and Suggestions for Improvement*

**Test 1:** _____

_____

**Test 2:** _____

_____

**Test 3:** _____

_____

**Test 4:** _____

_____

**Test 5:** _____

_____

**Test 6:** _____

_____

**Test 7:** _____

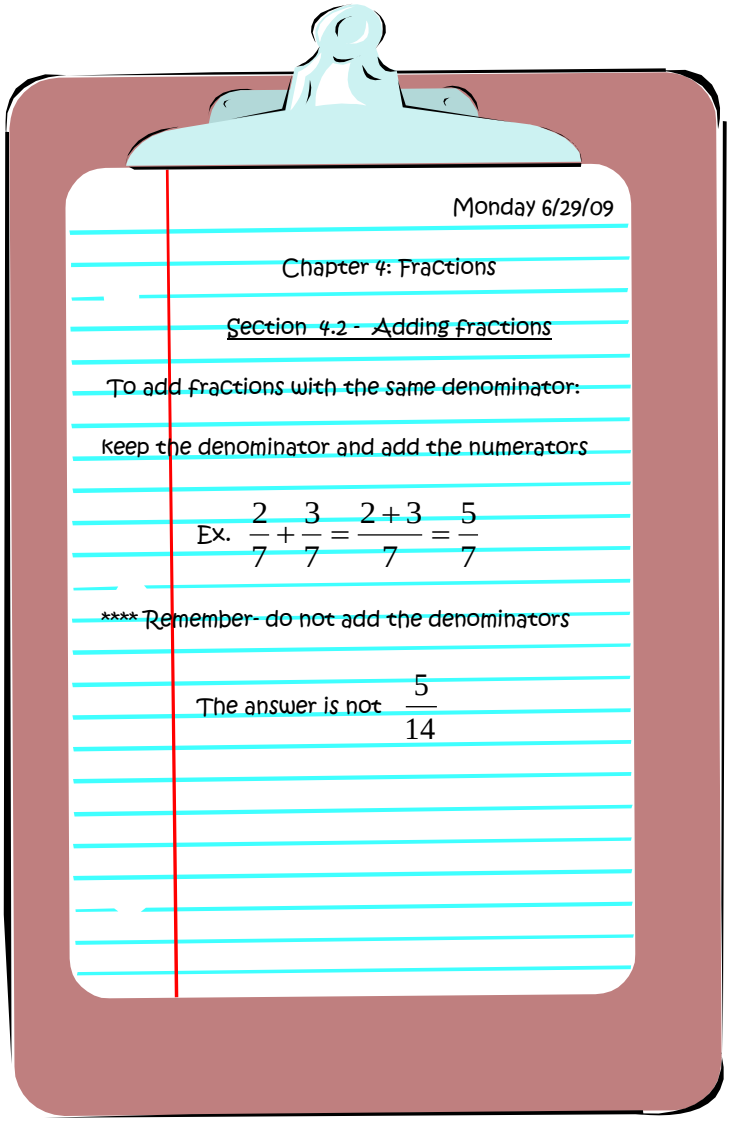
_____

# Lecture Notes

You will keep your classroom lecture notes and a reflection for each chapter in this section. Your notes should be dated and titled according to each lesson and should be kept in order. In your notes, you should include rules, examples, formulas and tips given by your instructor. An example is shown below.

***Remember: When taking notes:***

1. Date each page.
2. Label each page with the chapter and section number.
3. Start a new page for each section and label it with the title of the new chapter or section.
4. Model your notes based on the sample below.



Name:_____

Date: _____

# Chapter 1 Reflection

1. What is the title of the chapter?

   _____

2. Use your book or notes to define each mathematical term in the chapter title above.

3. Using the "Chapter Highlights" at the end of the chapter, state and describe three major concepts that you would expect to see on an exam.

4. Give an example of how you could use this chapter's concepts in the real world.

**Portfolio check list:** Answer the following questions honestly.

5. Notes:
    a. Do you have a complete set of notes for this chapter? _____
    b. Rate the quality of your notes on a 1-5 scale (5 being the best). _____
    c. Explain why you scored yourself this way.

6. Homework:
    d. Have you done all of the homework for this chapter? _____
    e. How would you rate the quality of your homework (1-5 scale)? _____
    f. Explain why you scored yourself this way.

7. Using your record sheets, calculate your current average and record it here. _____

8. What percentage do you expect to earn on this test? _____

Name:_____

Date: _____

# Chapter 2 Reflection

1. What is the title of the chapter?

   _____

2. Use your book or notes to define each mathematical term in the chapter title above.

3. Using the "Chapter Highlights" at the end of the chapter, state and describe three major concepts that you would expect to see on an exam.

4. Give an example of how you could use this chapter's concepts in the real world.

**Portfolio check list:** Answer the following questions honestly.

5. Notes:
    a. Do you have a complete set of notes for this chapter? _____
    b. Rate the quality of your notes on a 1-5 scale (5 being the best). _____
    c. Explain why you scored yourself this way.

6. Homework:
    d. Have you done all of the homework for this chapter? _____
    e. How would you rate the quality of your homework (1-5 scale)? _____
    f. Explain why you scored yourself this way.

7. Using your record sheets, calculate your current average and record it here. _____

8. What percentage do you expect to earn on this test? _____

Name:_____

Date: _____

# Chapter 3 Reflection

1. What is the title of the chapter?

   _____

2. Use your book or notes to define each mathematical term in the chapter title above.

3. Using the "Chapter Highlights" at the end of the chapter, state and describe three major concepts that you would expect to see on an exam.

4. Give an example of how you could use this chapter's concepts in the real world.

**Portfolio check list:** Answer the following questions honestly.

5. Notes:
    a. Do you have a complete set of notes for this chapter? _____
    b. Rate the quality of your notes on a 1-5 scale (5 being the best). _____
    c. Explain why you scored yourself this way.

6. Homework:
    d. Have you done all of the homework for this chapter? _____
    e. How would you rate the quality of your homework (1-5 scale)? _____
    f. Explain why you scored yourself this way.

7. Using your record sheets, calculate your current average and record it here. _____

8. What percentage do you expect to earn on this test? _____

Name:_____

Date: _____

# Chapter 4 Reflection

1. What is the title of the chapter?

   _____

2. Use your book or notes to define each mathematical term in the chapter title above.

3. Using the "Chapter Highlights" at the end of the chapter, state and describe three major concepts that you would expect to see on an exam.

4. Give an example of how you could use this chapter's concepts in the real world.

**Portfolio check list:** Answer the following questions honestly.

5. Notes:
    a. Do you have a complete set of notes for this chapter? _____
    b. Rate the quality of your notes on a 1-5 scale (5 being the best). _____
    c. Explain why you scored yourself this way.

6. Homework:
    d. Have you done all of the homework for this chapter? _____
    e. How would you rate the quality of your homework (1-5 scale)? _____
    f. Explain why you scored yourself this way.

7. Using your record sheets, calculate your current average and record it here. _____

8. What percentage do you expect to earn on this test? _____

Name:_____

Date: _____

# Chapter 5 Reflection

1. What is the title of the chapter?

   _____

2. Use your book or notes to define each mathematical term in the chapter title above.

3. Using the "Chapter Highlights" at the end of the chapter, state and describe three major concepts that you would expect to see on an exam.

4. Give an example of how you could use this chapter's concepts in the real world.

**Portfolio check list:** Answer the following questions honestly.

5. Notes:
    a. Do you have a complete set of notes for this chapter? _____
    b. Rate the quality of your notes on a 1-5 scale (5 being the best). _____
    c. Explain why you scored yourself this way.

6. Homework:
    d. Have you done all of the homework for this chapter? _____
    e. How would you rate the quality of your homework (1-5 scale)? _____
    f. Explain why you scored yourself this way.

7. Using your record sheets, calculate your current average and record it here. _____

8. What percentage do you expect to earn on this test? _____

Name:_____

Date: _____

# Chapter 7 Reflection

1. What is the title of the chapter?

   _____

2. Use your book or notes to define each mathematical term in the chapter title above.

3. Using the "Chapter Highlights" at the end of the chapter, state and describe three major concepts that you would expect to see on an exam.

4. Give an example of how you could use this chapter's concepts in the real world.

**Portfolio check list:** Answer the following questions honestly.

5. Notes:
    a. Do you have a complete set of notes for this chapter? _____
    b. Rate the quality of your notes on a 1-5 scale (5 being the best). _____
    c. Explain why you scored yourself this way.

6. Homework:
    d. Have you done all of the homework for this chapter? _____
    e. How would you rate the quality of your homework (1-5 scale)? _____
    f. Explain why you scored yourself this way.

7. Using your record sheets, calculate your current average and record it here. _____

8. What percentage do you expect to earn on this test? _____

Name:_____

Date: _____

# Chapter 9 Reflection

1. What is the title of the chapter?

   _____

2. Use your book or notes to define each mathematical term in the chapter title above.

3. Using the "Chapter Highlights" at the end of the chapter, state and describe three major concepts that you would expect to see on an exam.

4. Give an example of how you could use this chapter's concepts in the real world.

**Portfolio check list:** Answer the following questions honestly.

5. Notes:
    a. Do you have a complete set of notes for this chapter? _____
    b. Rate the quality of your notes on a 1-5 scale (5 being the best). _____
    c. Explain why you scored yourself this way.

6. Homework:
    d. Have you done all of the homework for this chapter? _____
    e. How would you rate the quality of your homework (1-5 scale)? _____
    f. Explain why you scored yourself this way.

7. Using your record sheets, calculate your current average and record it here. _____

8. What percentage do you expect to earn on this test? _____

Name:_____

Date: _____

# Chapter 10 Reflection

1. What is the title of the chapter?

   _____

2. Use your book or notes to define each mathematical term in the chapter title above.

3. Using the "Chapter Highlights" at the end of the chapter, state and describe three major concepts that you would expect to see on an exam.

4. Give an example of how you could use this chapter's concepts in the real world.

**Portfolio check list:** Answer the following questions honestly.

5. Notes:
    a. Do you have a complete set of notes for this chapter? _____
    b. Rate the quality of your notes on a 1-5 scale (5 being the best). _____
    c. Explain why you scored yourself this way.

6. Homework:
    d. Have you done all of the homework for this chapter? _____
    e. How would you rate the quality of your homework (1-5 scale)? _____
    f. Explain why you scored yourself this way.

7. Using your record sheets, calculate your current average and record it here. _____

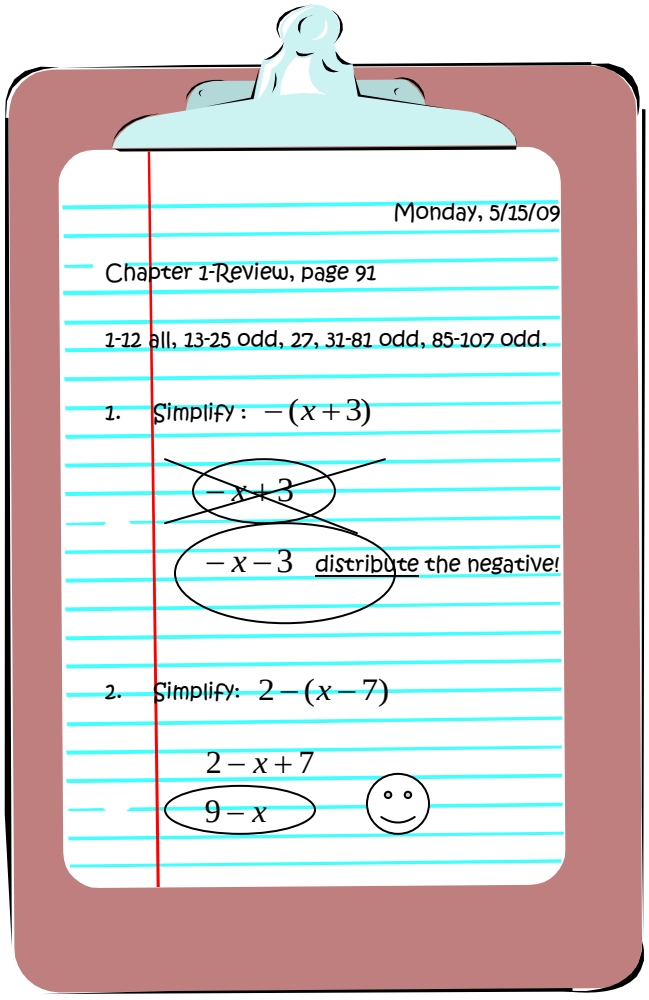
8. What percentage do you expect to earn on this test? _____

# Homework

You will keep evidence of your homework in this section. The record of your homework grades will be kept with your test grades in the test section. Whether your instructor assigns textbook problems or online homework, you are required to keep a written artifact of the assignment for each section. You should copy each problem exactly as it appears in the assignment and show all of the work necessary to answer the question. Each new assignment should be started on a new sheet of paper; labeled with the date, section, and page number, and kept in order.

***Remember, when doing homework:***

1. Write down the original problem and directions.
2. Show all your work (hand calculations, steps, algebra).
3. Check your answer before moving on to the next problem. If your answer is incorrect, put an X through the wrong work and start over. Once you get the right answer, go back to your first attempt and find your mistake. Make a note to yourself about your mistake.
4. Label each page with the date.
5. Start each new section on a new page and label it with the section number.
6. Model your homework based on the sample below.



# Textbook Homework & Suggested Practice Problems

*Textbook: PreAlgebra by Elayn Martin-Gay, 5th Edition, (VCC custom version)*

***Note**: eoo means every other odd*

| Textbook section | Page | Problems |
|---|---|---|
| 1.1 | 6 | 1-24 ALL |
| 1.2 | 11 to 14 | 1 -73 eoo and 71, 72, 74 |
| 1.3 | 25 to 29 | 1 – 99 eoo, 53, 58, 105, 106, 117 |
| 1.4 | 35 to 37 | 1 – 73 eoo, 71 |
| 1.5 | 45 to 49 | 1-101 eoo, 47 |
| 1.6 | 59 to 63 | 1 – 93 eoo 107, 109, 113, 115 |
| Integrated Review | 64 to 65 | 1-45 odd |
| 1.7 | 71 to 73 | 1 – 97 eoo, 87, 91, 99, 102 |
| 1.8 | 80 to 82 | 1 – 85 eoo, 93 |
| Vocabulary Check | 84 to 85 | 1-21 ALL |
| Chapter Highlights | 85 to 88 | READ |
| Chapter 1 Review | 88 to 92 | 1 – 149 eoo |
| Chapter 1 Test | 93 to 94 | 1 – 34 ALL |
| 2.1 | 101-103 | 1-11 eoo, 15, 17, 23-65 odd, 67-79 eoo, 83, 85 |
| 2.2 | 110-113 | 1-57 eoo, 59-71 odd, 77-83 odd |
| 2.3 | 117-120 | 1-29 odd, 31-53 eoo, 55-61 odd, 67-75 odd, 81-87 odd |
| 2.4 | 126-129 | 1-37 odd, 39-97 eoo, 99-113 odd, 119, 121 |
| 2.5 | 137-138 | 1-67 odd, 69-81 eoo |
| 2.6 | 147-148 | 1-51 odd |
| Vocabulary Check | 150 | 1-13 ALL |
| Chapter Highlights | 151-152 | READ |
| Chapter 2 Review | 153-156 | 1-23 odd, 27-135 odd |
| Chapter 2 Test | 157 | 1-35 ALL |
| 3.1 | 168 to 170 | 1-9 Odd,17, 21, 23, 25, 29, 31, 33, 35-70 eoo, 83, 85, 86 |
| 3.2 | 179 to 181 | 1, 3, 5, 11, 13, 15, 19, 21, 25, 27, 29-43 Odd, 45-65 eoo, 73, 79, 81, 85, 93 |
| 3.3 | 188 to 189 | 1, 7, 11, 13, 19, 23, 25-61 eoo |
| 3.4 | 196 to 198 | 1-7 Odd, 11, 15, 17, 21, 29, 31, 35, 39, 40,42 |
| Vocabulary Check | 201 | 1 – 13 ALL |
| Chapter Highlights | 201 to 203 | READ |
| Chapter 3 Review | 204 to 205 | 1 -12 eoo, 17 - 38 eoo |
| Chapter 3 Test | 208 | 1 – 14 ALL |
| 4.1 | 221 to 225 | 1-91 eoo |
| 4.2 | 236 to 238 | 1-27 odd,39,43,51-73 odd |

| | | |
|---|---|---|
| 4.3 | 247 to 250 | 1-5 odd, 13,17,19-27 odd,33,37,43,45,49,53,57,59,63,69-99 odd |
| 4.4 | 261 to 263 | 1-7 odd, 11-15 odd,19,21,25,33,37-57 odd,61-69 odd, 77,79 |
| 4.5 | 272 to 275 | 1-7 odd, 13,15,23,25,29-39 odd,43,47,51,55,57,61,65-79 odd,93-97 odd |
| 4.6 | 283 to 285 | 1,3,7,11-33 odd,37,39-51 odd |
| 4.7 | 297 to 302 | 1-67 odd, 77-103 odd |
| 4.8 | 310 | 1-25 odd |
| Vocabulary Check | 314 | 1 – 16 ALL |
| Chapter Highlights | 314 to 318 | READ |
| Chapter 4 Review | 319 | 1-19 odd,27,29,31,37-47 odd,53,59-63 odd,71,73,75,79,81-97 odd |
| Chapter 4 Test | 325 | 1,3,7,9,11,15,19,21,23,25,27,29,33,35,37,39 |
| 5.1 | 338 to 342 | 1-109 eoo |
| 5.2 | 350 to 354 | 1-113 eoo |
| 5.3 | 360 to 363 | 1-87 eoo |
| 5.4 | 370 to 373 | 1-115 eoo |
| 5.5 | 383 to 385 | 1-101 eoo |
| 5.6 | 388 to 390 | 1-65 eoo |
| Vocabulary Check | 398 | 1 – 4 ALL |
| Chapter Highlights | 398 to 400 | READ |
| Chapter 5 Review | 402 to 405 | 1 – 84 eoo |
| Chapter 5 Test | 408 | 1 – 20 ALL |
| 7.1 | 479 to 481 | 1-6 ALL, 7-49 eoo, 51-63 odd, 69, 71, 73-85 eoo |
| 7.2 | 488 to 489 | 1-47 odd |
| 7.4 | 506 to 509 | 1-29 odd, 31-34 ALL, 39, 40, 42, 43 |
| 7.5 | 515 to 516 | 1-33 odd |
| 7.6 | 523 | 1-16 ALL |
| Vocabulary Check | 526 | 1 – 16 ALL |
| Chapter Highlights | 526 to 529 | READ |
| Chapter 7 Review | 530 to 532 | 1 – 86 eoo |
| Chapter 7 Test | 533 to 534 | 1 – 28 ALL |
| 10.1 | 708 to 709 | 1 – 18 ALL, 23 – 57 eoo |
| 10.2 | 716 | 1 – 15 odd, 33 – 37 odd |
| 10.3 | 723 | 1 – 6 ALL, 19 – 21 ALL |
| Vocabulary Check | 730 | 5 – 8 ALL |
| Chapter Highlights | 730 | READ (10.1 to 10.3) |
| Chapter 10 Review | 732 to 733 | 1 – 7 ALL, 9, 10, 25- 30 ALL |
| Chapter 10 Test | 735 | 1 – 5 ALL, 12 - 15 ALL |
| 9.3 | 637 to 640 | 1 – 9 odd, 27 – 30 ALL, 41- 46 ALL |

# Activities & Labs

You will keep all activities that are introduced in the classroom or lab component along with a record of your activity grades in this section. When your professor returns a graded lab or activity, file it in this section and record your grade on the next page.

These 3 activities are provided on following pages.

- Learning Styles
- You Can Do It, Math Can Help (Home Improvement Activity)
- Financing your Ride (Financial Literacy Activity)

# Activity & Lab Record Sheet

Students should use this form to record and total scores for graded activities and labs. Some of the activities are already listed in the table. At the end of each chapter, calculate and record your **total** as a fraction of earned points divided by total points available. When you total your scores for chapter two and so on, make sure to add in the totals from previous chapters to get the **running total**. **Note:** In Blackboard you have an OVERALL grade sheet to keep you up to date.

| | Date | Title of Activity or Lab Assignment | Score |
|---|---|---|---|
| Chapter 1 | | Activity: Learning Styles | |
| | | | |
| | | | |
| | | Total: | |
| Chapter 2 | | | |
| | | | |
| | | | |
| | | Running Total: | |
| Chapter 3 | | | |
| | | | |
| | | | |
| | | Running Total: | |
| Chapter 4 | | Home Improvement Activity: "You can do it, math can help" | |
| | | | |
| | | | |
| | | Running Total: | |
| Chapter 5 | | | |
| | | | |
| | | | |
| | | Running Total: | |
| Chapter 7 | | Financial Literacy Activity: "Financing Your Ride" | |
| | | | |
| | | | |
| | | Running Total: | |
| Ch. 9&10 | | | |
| | | | |
| | | | |
| | | Running Total: | |

# Learning Styles

*Activity to accompany Chapter 1*

You will take the **The Barsch Learning Style Inventory** to determine your preferred learning style and complete a reflection on the next page. The Barsch Inventory is a self-assessment tool to help you determine your learning style according to three categories: visual, auditory, or kinesthetic. This should take approximately 10-15 minutes to complete.

This activity can be found online in Blackboard. Go to http://*online.valenciacc.edu* to log in, or you can go directly to:

**http://ww2.nscc.edu/gerth_d/AAA0000000/barsch_inventory.htm**

Be honest about your natural preferences when answering the questions. Awareness of your learning style(s) and preferences will help improve your study habits and memory skills. We all use a combination of styles to help us learn and remember, but we usually prefer one style over the others.

Once you've completed the assessment, click the button that says "Get Barsch Inventory Results" and write your scores for each learning style in the table below:

| Section I – **Visual** | Section II – **Auditory** | Section III - **Kinesthetic** |
|---|---|---|
| | | |

Tied scores may indicate your ability to learn comfortably using more than one learning style. A table of explanations of the three learning styles is located on the next page.

| | Clues | Learning Tips |
|---|---|---|
| VISUAL | • Needs to see it to know it.<br>• Strong sense of color.<br>• May have artistic ability.<br>• Difficulty with spoken directions.<br>• May be easily distracted by sounds.<br>• Trouble following lectures.<br>• Misinterpretation of spoken words. | • Use of graphic to reinforce learning—films, slides, illustrations, diagrams, doodles.<br>• Color coding to organize notes and possessions.<br>• Written directions.<br>• Use of flow charts and diagrams for note taking.<br>• Visualizing spelling of words or facts to be memorized. |
| AUDITORY | • Prefers to get information by listening—needs to hear it or speak it to know it.<br>• Written directions more difficult to follow than spoken directions.<br>• Prefers listening to reading and writing.<br>• Inability to read body language and facial expressions. | • Use of tapes for reading and for class and lecture notes.<br>• Learning by interviewing or by participating in discussions.<br>• Works well in study groups.<br>• Having test questions or directions read aloud or put on tape. |
| KINESTHETIC | • Prefers hands-on learning.<br>• Can assemble parts without reading directions.<br>• Difficulty sitting still.<br>• Learns better when physical activity is involved.<br>• May be very well-coordinated and have athletic ability. | • Experiential learning (making models, doing lab work, and role playing).<br>• Frequent breaks in study periods. Tracing letters and words to learn spelling and remembering facts.<br>• Use of computer to reinforce learning through sense of touch.<br>• Memorizing or drilling while walking or exercising.<br>• Usually involves some kind of movement while learning i.e., tapping pencil, shaking foot, holding something. |

- Adapted from Scheiber, Barbara and Talpers, Jeanne. (1985) and Valencia's Student Success Course.

## *Learning Style Reflection*

Name: _____

1. According to the Barsch Inventory, describe your preferred learning style and discuss why this information can help you in the learning process. Use complete sentences.

_____

_____

_____

_____

_____

2. The Barsch Learning Styles Explanation on the previous page gives clues and tips for learning. Choose three clues from your learning style and discuss how this information can help you learn *mathematics* more effectively. Use complete sentences.

a)

_____

_____

_____

b)_____

_____

_____

c)

_____

_____

_____

3. Design and describe at least two study techniques based on your learning style that will help you learn the topics in Developmental Math I.

***Example:*** ***"Auditory- Recite my formulas 10 times each day until the exam."***

_____

_____

_____

_____

_____

# You Can Do It, Math Can Help!

*Home Improvement Activity to accompany Chapter 4*

Name: _____

Group Members: _____

In this activity, your group will measure the dimensions of your classroom in order to determine the amount of materials needed to upgrade the room. The upgrades outlined in this activity are representative of those you might implement in your own home one day. You will perform calculations for laying baseboards and casing, putting in new carpet and painting the walls. The first seven questions will be completed as a group and question eight will be done individually.

1. Use your resources to find the definition of the following terms and write a definition in your own words. Include formulas with your definition.

    a) PERIMETER:

    b) AREA:

2. Use your resources to convert the following American measurements into their simplest form. Be Careful-Don't simply write the number of inches after a decimal point!

    a) 1 foot = ____ inches

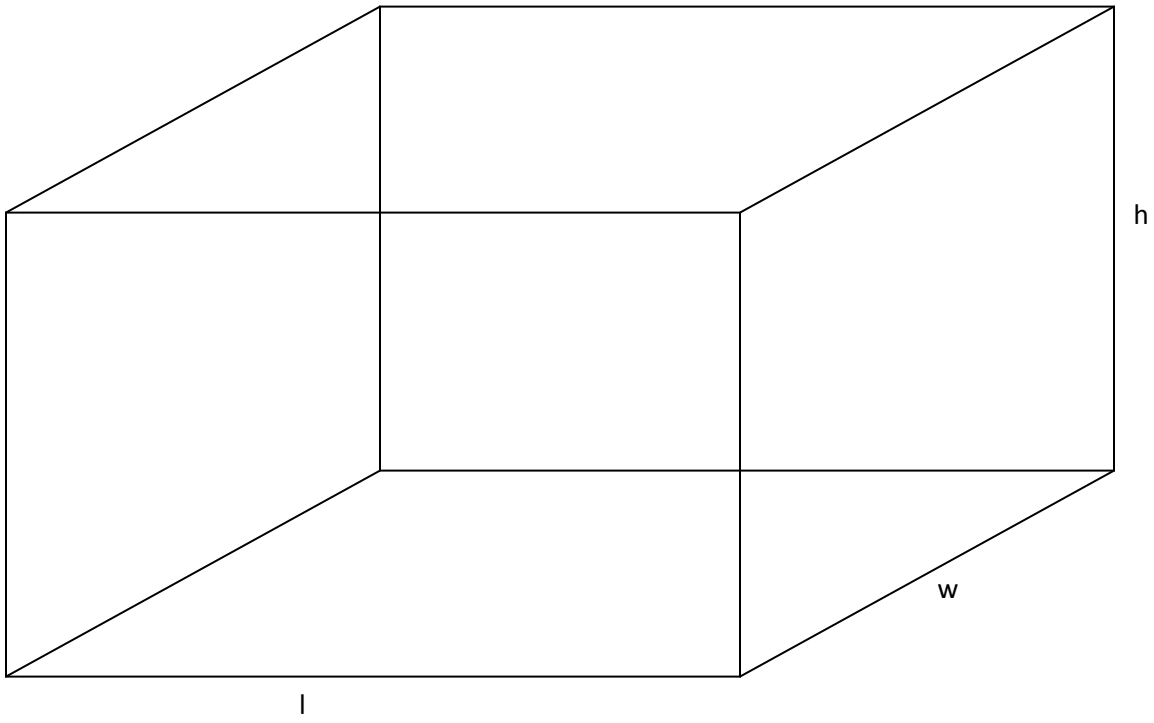
    b) 1 foot 5 inches = _____ feet

    c) 3' 8" = _____ feet

## *Visualizing*

3. Complete the drawing below.

    a) Look around the classroom and draw the doors and windows in the three dimensional room. Ask your professor if you will be considering all details of the classroom or if you will be assuming a rectangular room.




    b) Label your drawing using the assigned variables given in the table on the following page.

## *Measurements*

4. Complete the table below.

   a) Measure the following dimensions of the room in ft' in" and record them in the table below. Round your measurements to the nearest inch. (Each group may be assigned specific measurements to share with the class).

| Dimension | variable | ft' in" | Feet (mixed number) | Feet (improper fraction) |
|---|---|---|---|---|
| **Height of Room** | h | | | |
| **Length of front/back wall** | l | | | |
| **Length of sides walls** | w | | | |
| **Height of Door(s)** | a | | | |
| **Width of Door(s)** | b | | | |
| **Height of Window(s)** | x | | | |
| **Width of Window(s)** | y | | | |

   b) Complete the next column by converting each of your measurements into feet written with mixed numbers. Use the space below to show your work.

   c) Complete the last column by converting to feet written with improper fractions. Use the space below to show your work.

## *Installing Carpet*

5. You will be laying new carpet in the classroom. Follow the steps below to calculate the amount of carpet that is needed to cover the floor.

   a) **Write an algebraic expression** for the area of the floor. Remember, if your floor is not a perfect rectangle, you may need to break the floor into geometric shapes to find the total area. Feel free to illustrate this on your drawing.

   b) Use your measurements to **calculate** the area of the floor. Show your work in the space below.

   c) Write a **complete sentence** that describes your results in the context of the problem.

_____

_____

_____

_____

## *Installing Baseboards*

6. You will be installing baseboard along the bottom of the walls and casing around the doors. Casing will go up the sides and along the tops of the doorways but not along the bottom. Calculate the length of the baseboard and casing that is needed for the room by following the steps below.

   a) Write an algebraic expression for the **perimeter** of the room.

   b) Considering the doors, **write an algebraic expression** for the length of the baseboard and casing that is needed for the room.

   c) **Calculate** the length of the baseboard and casing that is needed for the room. Show your work in the space below.

   a) Write a **complete sentence** that describes your results in the context of the problem.

   _____

   _____

   _____

   _____

## *Painting the Room*

7. You will be painting all four walls, but not the door(s) or window(s). Follow the steps below to calculate the surface area to be painted.

   a) Using the variables provided in the table, write an algebraic expression for the **area of the door(s).**

   b) Similarly, write an algebraic expression for the **area of the window(s).**

   c) Write an algebraic expression for the **area of the front wall**.

   d) Write an algebraic expression for the **area of a side wall**.

   e) Use the expressions you found in parts a) through d) to write an expression for the **total area of walls to be painted.**

   f) Lastly, evaluate your expression in part e) using the measurements from the table to **calculate** the total surface area to be painted. Show your work in the space below.

   g) Write the solution in a complete sentence in the context of the problem.

_____

_____

_____

_____

## *Reflection Questions*

8. Please reflect on the following questions and answer them individually. These last questions are personal and should not be completed with your group.

    a) Why might it be important to write algebraic expressions?

    b) Give real world examples of how these skills can be incorporated into your life.

    c) What part of this activity was the most fun?

    d) How does your answer to part C relate to your preferred learning style (auditory, visual, or kinesthetic)?

    e) What part of this activity was the most challenging?

    f) What strategies will you use to overcome these challenges?

# Financing Your Ride

*Financial Literacy Activity to Accompany Chapter 7*

## *Project Overview*

Is there a new car you are interested in purchasing? Do you know its approximate price? Do you know how to calculate a monthly car payment? In this project, you will have the opportunity to discuss and analyze financial terms applied to car loans, monthly car payments and expenses including license, title, insurance, gasoline, etc. The purpose of this assignment is to give practical knowledge and understanding of the costs associated with financing used and new vehicles.

## *Objectives*

As a result of this activity, you will gain familiarity with auto loan terms and will be able to:

- Research and choose an economical vehicle
- Compute car payments
- Compute the costs associated with financing used and new vehicles
- Use percentages, sales tax and simple interest formulas

## *Useful Web Sites*

- Financial vocabulary and loan info: investopedia.com, bankrate.com
- New and Used Car Prices: cars.com, autotrader.com, edmunds.com, autos.msn.com
- Kelley Blue Book values for used cars: kbb.com
- Mileage calculations: maps.google.com, mapquest.com, bing.com/maps, maps.yahoo.com
- Insurance quotes: statefarm.com, progressive.com, geico.com, esurance.com, allstate.com

**Note: The methods used in this activity are not exactly the way vehicle payments are calculated, but give an estimation of payments at the pre-algebra level. The exact calculation(s) use a more complex formula.**

| *Sample Rubric for Grading Financing a Car* | | | | | | |
|---|---|---|---|---|---|---|
| | | **1**<br><br>**Unsatisfactory** | **2**<br><br>**Developing** | **3**<br><br>**Satisfactory** | **4**<br><br>**Exemplary** | **Score** |
| **Part 1** | **Reasons for getting or not getting each vehicle** | Reasons for getting or not getting each vehicle incomplete or incorrect | Reasons for getting or not getting each vehicle are started, but not completed or entirely correct | Reasons for getting or not getting each vehicle is complete and correct, but there may be minor errors | Reasons for getting or not getting each vehicle are complete and correct | |
| **Part II** | **Monthly cost of OPTION 1 (Motorcycle)** | Monthly cost is incomplete or incorrect | Monthly cost is started, but not completed or entirely correct | Monthly cost is complete and correct, but there may be minor errors | Monthly cost is complete and correct | |
| | **Monthly cost of OPTION 2 (Used car)** | Monthly cost is incomplete or incorrect | Monthly cost is started, but not completed or entirely correct | Monthly cost is complete and correct, but there may be minor errors | Monthly cost is complete and correct | |
| | **Monthly cost of OPTION 3 (New car)** | Monthly cost is incomplete or incorrect | Monthly cost is started, but not completed or entirely correct | Monthly cost is complete and correct, but there may be minor errors | Monthly cost is complete and correct | |
| **Part III** | **Reflection Questions** | Refection questions are incomplete. | Reflection questions are partially completed, some without complete sentences. | Questions are complete and sentences are complete, but it could have listed more detail. | Reflection questions are entirely though out and 100% complete. | |

## *Financing Your Ride: Understanding Loan Vocabulary*

---

In order to become an educated and informed buyer, it is important to understand car loan terms. Discuss the following terms with your group and move on to the next page.

| **Definitions of Auto Loan Terms** | |
|---|---|
| Add-ons | Also known as options. These are features added on to the car often by the dealer such as a CD stereo, anti-theft system, detailing and undercoating. Some items are purely decorative, known as "mop and glow," and do not add any value to the car. |
| Annual Percentage Rate (APR) | A yearly rate of interest that includes fees and costs paid to acquire the loan. Lenders are required by law to disclose the APR. The rate is calculated in a standard way, taking the average compound interest rate over the term of the loan, so borrowers can compare loans. There is no APR in a lease; instead, the cost of money is expressed as the money factor. |
| Base price | The cost of a car without options. This price includes standard equipment and the manufacturer's warranty and is printed on the Monroney sticker. |
| Blue Book | Formally, it refers to the Kelley Blue Book, an industry guide dealers use to estimate wholesale and retail vehicle pricing. |
| Down payment | A payment in cash or trade-in value that reduces the amount of a car's purchase price that is financed. |
| Interest | The cost of borrowing money, expressed as a percentage. For the best current interest rates on auto loans, use the bankrate.com (tm) auto loan search engine. |
| Principal | In a standard auto loan, the amount financed, which is due on a certain date and usually paid off through an amortized loan. Also see amortization. |
| Term | The length of the loan or lease, usually 24, 36, 48 or 60 months. |

After discussing these terms, define them in your own words.

| **Definitions of Auto Loan Terms** | |
|---|---|
| Add-ons | |
| Annual Percentage Rate (APR) | |
| Base price | |
| Blue Book | |
| Down payment | |
| Interest | |
| Principal | |
| Term | |

## *Financing Your Ride: Researching Options*

What is the car of your dreams? Do you know its approximate price? Do you know how to calculate the monthly car payment? What other things should you take into consideration when choosing a vehicle? Use the internet to research your three dream vehicles: A new motorcycle, a used car and a new car. Record your findings below to compare and contrast the purchase of each type of vehicle.

### OPTION 1: New Motorcycle

Make:_____ Model:_____ Year:_____ MPG: _____ Price: $ _____

Pros:_____

_____

_____

Cons:_____

_____

_____

### OPTION 2: Used Car

Make:_____ Model:_____ Year:_____ MPG: _____ Price: $ _____

Pros:_____

_____

_____

Cons:_____

_____

_____

## OPTION 3: New Car

Make:_____ Model:_____ Year:_____ MPG: _____ Price: $ _____

Pros:_____

_____

_____

Cons:_____

_____

_____

In addition to the information above, it is important to know how much the vehicle will cost to drive. You can estimate the monthly costs of each option by considering the monthly loan payment, and the cost of gasoline and insurance. On the next three pages, you will calculate the total monthly cost of each option based on the given information.

*To calculate the **number of miles driven per month**, use a mapping web site to determine how many miles you travel in a typical day.

**To calculate the **monthly cost of insurance**, use an insurance company's website to get a free quote. **Do not** enter any personal information such as your social security or driver's license number.

## *Financing your Ride: Evaluating OPTION 1*

| Insert picture here | **New Motorcycle**<br><br>Make and model: | | |
|---|---|---|---|
| | | + | – |
| | **Base Price (B):** | | |
| | Sales Tax is 7% of the Base Price<br>Calculate the **Sales Tax (T)**: | | |
| | **Down Payment (D)**<br>Choose a realistic dollar amount that you can afford: | | |
| | Approximate Tag and Registration fee: | $300.00 | |
| You are financing the remaining cost of the vehicle, the **Principal**. Use the variables in parentheses (above) to write an expression for the principal (P) of your loan: P = _____<br><br>Use your expression to calculate the **principal:** | | | |
| | | | |
| Recall the simple **interest** formula. Calculate the total **interest** on a 3 year loan, with an 8% annual interest rate using your principal above. | | | |
| Your **loan payoff** is the sum of the Principal and Interest. How much is the total **loan payoff**? | | | |
| | | | |
| Recall the term of the loan is 3 years, so how much is the **monthly** loan payment? | | | |
| Calculate the **monthly gasoline cost** using the steps below:<br><br>a) Approximate the number of miles you drive per month*: _____<br>b) State the miles per gallon (MPG) of vehicle: _____<br>c) monthly gallons = (miles per month) / (MPG) = _____<br>d) Write the current cost per gallon of gasoline: _____ | | | |
| e) Monthly cost of gasoline = (monthly gallons)*(cost per gallon) = | | | |
| Monthly cost of insurance**: | | | |
| What is the total monthly cost for this vehicle? | | | |

## *Financing your Ride: Evaluating OPTION 2*

| Insert picture here | **Used Car**<br><br>Make and model: | | |
|---|---|---|---|
| | | + | – |
| | Kelly Blue Book **Base Price (B):** | | |
| Sales Tax is 7% of the Base Price<br>Calculate the **Sales Tax (T)**: | | | |
| **Down Payment (D)**<br>Choose a realistic dollar amount that you can afford: | | | |
| Approximate Tag and Registration fee: | | $300.00 | |
| You are financing the remaining cost of the vehicle, the **Principal**. Use the variables in parentheses (above) to write an expression for the principal (P) of your loan: P = _____<br>Use your expression to calculate the **principal:** | | | |
| | | | |
| Recall the simple **interest** formula. Calculate the total **interest** on a 3 year loan, with an 8% annual interest rate using your principal above. | | | |
| Your **loan payoff** is the sum of the Principal and Interest. How much is the total **loan payoff**? | | | |
| | | | |
| Recall the term of the loan is 3 years, so how much is the **monthly** loan payment? | | | |
| Calculate the **monthly gasoline cost** using the steps below:<br>a) Approximate the number of miles you drive per month*: _____<br>b) State the miles per gallon (MPG) of vehicle: _____<br>c) monthly gallons = $\frac{\text{miles per month}}{\text{MPG}}$ = _____<br>d) Write the current cost per gallon of gasoline: _____ | | | |
| e) Monthly cost of gasoline = (monthly gallons)*(cost per gallon) = | | | |
| Monthly cost of insurance**: | | | |
| What is the total monthly cost for this vehicle? | | | |

## *Financing your Ride: Evaluating OPTION 3*

| Insert picture here | **New Car**<br><br>Make and model: | | |
|---|---|---|---|
| | | + | – |
| | **Base Price (B):** | | |
| | Sales Tax is 7% of the Base Price<br>Calculate the **Sales Tax (T)**: | | |
| | **Down Payment (D)**<br>Choose a realistic dollar amount that you can afford: | | |
| | Approximate Tag and Registration fee: | $300.00 | |
| You are financing the remaining cost of the vehicle, the **Principal**. Use the variables in parentheses (above) to write an expression for the principal (P) of your loan: P = _____<br><br>Use your expression to calculate the **principal:** | | | |
| | | | |
| Recall the simple **interest** formula. Calculate the total **interest** on a 3 year loan, with an 8% annual interest rate using your principal above. | | | |
| Your **loan payoff** is the sum of the Principal and Interest. How much is the total **loan payoff**? | | | |
| | | | |
| Recall the term of the loan is 3 years, so how much is the **monthly** loan payment? | | | |
| Calculate the **monthly gasoline cost** using the steps below:<br><br>a) Approximate the number of miles you drive per month*: _____<br>b) State the miles per gallon (MPG) of vehicle: _____<br>c) monthly gallons = $\frac{\text{miles per month}}{\text{MPG}}$ = _____<br>d) Write the current cost per gallon of gasoline: _____ | | | |
| e) Monthly cost of gasoline = (monthly gallons)*(cost per gallon) = | | | |
| Monthly cost of insurance**: | | | |
| What is the total monthly cost for this vehicle? | | | |

## *Financing your Ride: Reflection Questions*

This activity did not cover all of the costs and issues associated with buying a vehicle. Reflect on this activity and answer the following questions.

1. What are some costs and issues that were not considered?

2. After analyzing your research and calculations, which vehicle would you choose and WHY?

3. What did you learn from completing this activity (academically and personally)?

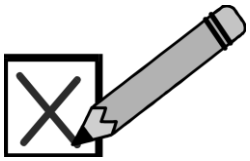
# TESTS & CORRECTIONS

This section will hold your tests, test corrections, and a record of your homework and test grades. You are required to complete a set of corrections after each test. Test corrections contribute to your portfolio grade.

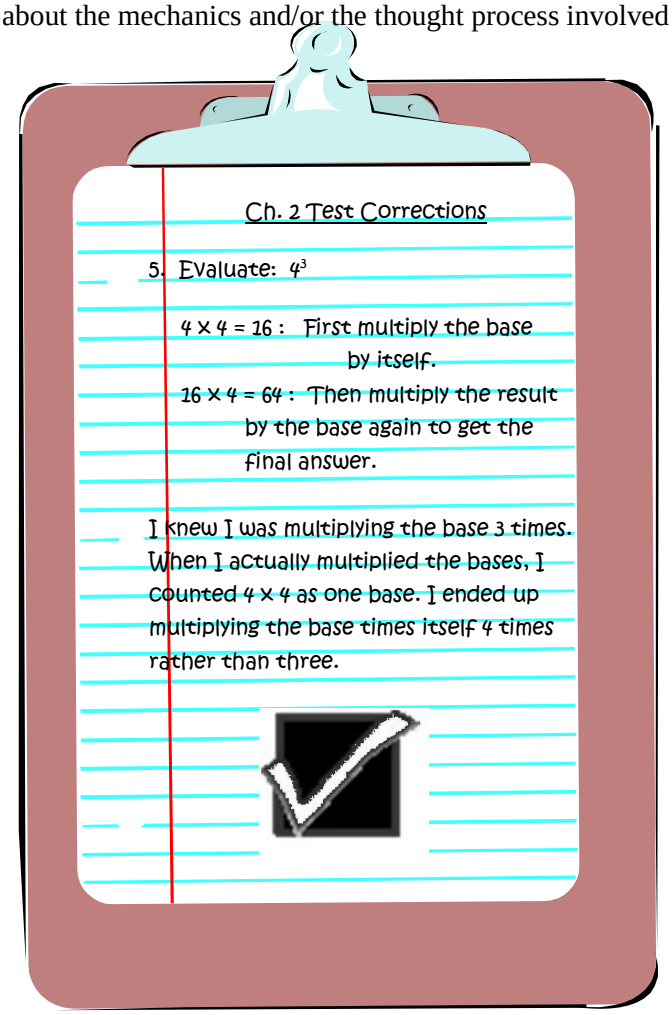
## ***Test Correction Guidelines***

Test corrections should **not** to be done on the actual test. Test corrections should be stapled to the test and the heading should include your **NAME** and **CHAPTER.**

To receive full credit for the corrections, you must follow **ALL** of the following:



1. Rewrite the problem and directions.
2. Correct the problem showing **ALL** of the steps.
3. Explain the error(s) **in words** and include a statement regarding potential mistakes. This explanation may be about the mechanics and/or the thought process involved in solving the problem.



# *Test and Homework Grade Sheet*

Students should use this sheet to record homework/test scores and to track averages. The averages will be transferred to the Overall Grade Sheet for additional calculations.

| | Test Score | Test Average |
|---|---|---|
| **Chapter 1** | | |
| **Ch. 2** | | |
| **Ch. 3** | | |
| **Ch. 4** | | |
| **Ch. 5** | | |
| **Ch. 7** | | |
| **Chs 9&10** | | |

| | HW Score | HW Average |
|---|---|---|
| **Ch. 1** | | |
| **Ch. 2** | | |
| **Ch. 3** | | |
| **Ch. 4** | | |
| **Ch. 5** | | |
| **Ch. 7** | | |
| **Chs 9&10** | | |

After each test, **record** your Test Score next to the appropriate chapter(s). Write it as a fraction that represents your points earned divided by the total possible points.

To track your **averages:** 1. Add up your total earned points. 2. Add up the total possible points. 3. Write a fraction for your earned points divided by the total possible points. (see sample below)

If your homework is graded in MyMathLab, you can pull your current average from your MyMathLab account.

| SAMPLE | Test Score | Test Average |
|---|---|---|
| **Chapter 1** | 79/100 | |
| **Ch. 2** | 83/100 | 162/200=81% |
| **Ch. 3** | 91/100 | 253/300=84% |
| **Ch. 4** | 28/100 | 281/400=70% |
| **Ch. 5** | | |
| **Ch. 7** | | |
| **Chs 9&10** | | |

**NOTE**: In Blackboard you have an OVERALL grade sheet to keep you up to date.

# MAT 0018C

# Final Exit Exam Review Booklet

VALENCIA

# MAT 0018C Final Exit Exam Review Booklet

Table of Contents

# MAT0018C Final Exit Exam Review Booklet

# Introduction

This Review Booklet was designed to help you prepare for the Developmental Math I Final Exit Exam. You will find a list of major topics you should master before taking the exam, as well as practice problems for every topic. Answers to all the problems can be found at the end of the practice section. For each topic, we have included a "Memory Recall" section which briefly summarizes the steps for the corresponding problems.

Practice is a very important step in learning the concepts and methods of mathematics. We encourage you to work all the problems on this packet. You may wish to work individually, form study groups with your peers, or work with tutors on these practice problems. Study for this test **without the use of the calculator.**

# Final Exit Exam Guidelines

a. The Final Exit Exam will be delivered electronically, via Blackboard. If you are unfamiliar with Blackboard, in this booklet we have included a section that contains access information.
b. There are 30 multiple-choice questions. You will find multiple-choice math test taking strategies in the last section of this review booklet.
c. Passing score: 24 or more out of 30 questions (80% or higher)
d. The Final Exit Exam does not allow the use of a calculator.
e. Formulas will not be provided.
f. You will have 2 hours to complete the exam. To pass your Developmental Math I course, you **must** pass the Final Exit Exam **and** your instructor's classroom requirements with an overall class average of 70% or higher.

If a student fails the Final Exit Exam on the first attempt, he/she **may** be considered for a 2nd attempt. This is a privilege – not a right – that the instructor will grant to students who meet the following specific requirements:

1. 60% minimum on first attempt (at **least** 18 correct out of 30 questions)
2. 70% or higher overall class average going into the Final Exit Exam.
3. 80% or higher Portfolio average.

## Major Topics

Basic Arithmetic; evaluate expressions; order of operations

Identify and combine like terms; apply distributive property

Solving linear equations; percents

Recognize polynomials; perform addition, subtraction, multiplication of a monomial and a polynomial

Find perimeter, area, and volume of geometric shapes

**Note: All of these topics include application problems.**

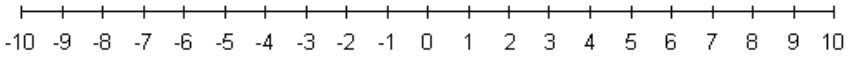
# By Topics: Final Exit Exam Review

## I. Comparing real numbers

Memory Recall:

Comparing Integers:

Look at their positions on the number line; the integer on the right is greater than the integer on the left. Every positive integer is greater than any negative integer.




Memory Recall:

Comparing positive fractions:
Same denominator: Fraction with the smaller numerator is less than the other.
Same numerators: Fraction with the smaller denominator is greater than the other.
Different denominators: Change to equivalent fractions (with same denominator)
Alternate method: To see which fraction is larger, change the fractions to decimals by dividing and compare their decimal values.

Memory Recall:

Comparing positive decimals:
Compare the whole number parts first. The larger decimal is the one with the larger whole number portion. If the whole number portions are equal, compare the decimal part of the numbers. The leftmost decimal digit is the most significant digit. Compare the digits (to the right of the decimal) from left to right until you identify the larger number. The number with the larger digit is the larger number (caution… the number with the most digits is *not* necessarily the largest).
Comparing a fraction and a decimal:
Convert the fraction to a decimal number by dividing and compare the decimal numbers.
Alternate method: convert decimal to fraction and compare.

Memory Recall:

Use an inequality symbol to compare numbers (reading from left to right):

| Symbol | Meaning |
|---|---|
| $>$ | greater than |
| $<$ | less than |
| $=$ | equal to |
| $\geq$ | greater than or equal to |
| $\leq$ | less than or equal to |

Practice problems

For problems 1-5, compare the following numbers using >, <, or = signs.

1. $-10 \square -11$

A) $>$
B) $<$
C) $=$

2. $\frac{5}{11} \square \frac{43}{88}$

A) $>$
B) $<$
C) $=$

3. $-0.63 \square -0.6$

A) $>$
B) $<$
C) $=$

4. $-\frac{8}{13} \square -\frac{9}{13}$

A) $>$
B) $<$
C) $=$

5. $-8.5 \square -\frac{25}{3}$

A) $>$
B) $<$
C) $=$

6. $2\frac{7}{8} \square 2\frac{14}{16}$

A) $>$
B) $<$
C) $=$

7. Find the decimal equivalent to: $-\frac{5}{8}$

A) $-0.625$
B) $-0.62\overline{5}$
C) $0.625$

8. Which of the following is true?

A) $\frac{1}{2} < \frac{1}{3}$
B) $\frac{2}{3} > \frac{3}{4}$
C) $\frac{3}{5} < 1.7$
D) $0.3 > 0.33$

9. Select the greatest fraction.

A) $\frac{1}{2}$
B) $\frac{2}{3}$
C) $\frac{1}{5}$
D) $\frac{5}{8}$

For problems 10 – 15 circle the number that is greater.

10. $-34$ _____ $-40$

11. $-7.1$ _____ $4.5$

12. $3.256$ _____ $3.246$

13. $\frac{3}{4}$ _____ $\frac{1}{2}$

14. $-3.413265$ _____ $-3.413467$

15. $\frac{5}{8}$ _____ $\frac{6}{9}$

16. Does $-3^2 = (-3)^2$ ? Explain why or why not.

17. Does $-|-3| = 3$? Explain why or why not.

18. Order the following fractions from least to greatest.
$\frac{9}{12}, \frac{7}{10}, \frac{14}{18}$

19. Are $|-5|$ and $-|5|$ equivalent? Justify your answer.

**II. Order of operations with rational numbers (integers, fractions, decimals)**

Memory Recall: $\overrightarrow{GE}\ \overrightarrow{MD}\ \overrightarrow{AS}$

Steps:

(1) Perform any calculations inside grouping symbols (brackets, parentheses, fraction bar, square root, absolute value); if more than one grouping symbol, simplify from the inside out.
(2) Answer any square root or absolute value questions.
(3) Simplify all exponents.
(4) Perform multiplications and divisions, working from left to right.
(5) Perform additions and subtractions, working from left to right.

Memory Recall:

Addition with signed numbers:

Hint: Think of money when working with signed numbers. The positive numbers represent salary (in your favor) while negative number represent money owed (bills).

Both Positive: The answer must be a bigger salary; the result is a positive number.

Both Negative: The answer must be a bigger debt; the result is a negative number.

Adding positive and negative: If the salary is larger than the debt, the result will be positive; if the bills are larger than the salary, the answer will be negative.

Examples:

7 + 5 = 12 7 + (-5) = 2

(-7) + (-5) = -12 (-7) + 5 = -2

Subtraction with signed numbers:

(1) Change the subtraction problem to an addition problem by changing the number that is being subtracted to the opposite value. Hint: remember that a negative is the opposite of a positive and vice versa.
(2) Follow the rules (above) for addition.

| Example: | Example: |
|---|---|
| -7 – 5 | (-8) – (-6) |
| -7 + (-5) | (-8) + 6 |
| -12 | -2 |

Memory Recall:

Multiplication and division with signed numbers:

(1) Perform the specified operation (multiply or divide).

(2) Same Sign → Answer is positive

(3) Opposite Signs → Answer is negative

Memory Recall:

Adding and subtracting fractions with a common denominator:
(1) Simply add or subtract the numerators and keep the denominator the same.
(2) Don't forget the integer rules! Reduce answers wherever possible.

Example: a. $\frac{3}{5}+\frac{18}{5}=\frac{21}{5}$ b. $-\frac{3}{5}+\frac{18}{5}=\frac{15}{5}=3$

Adding and subtracting fractions with different denominators:
(1) Find the least common denominator (LCD) for the fractions.
(2) Use the LCD to write equivalent fractions.
(3) Remember, any integer has a denominator of 1!
(4) Don't forget the integer rules and reduce answers wherever possible.

For example: a. $5+\frac{7}{3}=\frac{5}{1}+\frac{7}{3}=\frac{5\bullet 3}{1\bullet 3}+\frac{7}{3}=\frac{15}{3}+\frac{7}{3}=\frac{22}{3}$

Note in example b, 48 is a common denominator but not the "least" common denominator!

b. $\frac{7}{6}-\frac{11}{8}=\frac{7\bullet 4}{6\bullet 4}-\frac{11\bullet 3}{8\bullet 3}=\frac{28}{24}-\frac{33}{24}=-\frac{5}{24}$

Memory Recall: No LCD is needed when multiplying and dividing fractions!

Multiplying: Simplify first if possible, multiply the numerators and then multiply the denominators.

Dividing: Keep the fraction on the left as is, then multiply by the reciprocal of the second fraction (divisor); that is, change to multiplication, flip the fraction on the right, then proceed to multiply using the rule above. This is known as the "keep it, change it, and flip it" rule.

Example:

a. $\frac{7}{16}\bullet\frac{8}{21}$

Simplify the fractions by dividing the 8 and 16 by 8, and dividing 7 and 21 by 7.

This product reduces to $\frac{1}{2}\bullet\frac{1}{3}=\frac{1}{6}$

b. $\frac{24}{25}\div\frac{16}{15}=\frac{24}{25}\bullet\frac{15}{16}$

Simplify any numerator with any denominator:

This product reduces to $\frac{3}{5}\bullet\frac{3}{2}=\frac{9}{10}$

Memory Recall:
Adding and subtracting decimals:
Line up the decimals while placing the larger number on the top, regardless of the sign. If asked to subtract 0.134 - 0.789, use 0**.**789, BUT remember the answer will be negative.

Answer: - 0**.**134

Memory Recall:
Multiplying decimals:
Note: Do not line up the decimals! You will get the right answer but you will create a lot of work for yourself!

(1) Determine the sign of the answer and remember to include the correct sign after finishing step (4).
(2) Place the number with the most digits on the top (regardless of which one is larger); this is how we multiply whole numbers so the set up will be very similar.
(3) Multiply the numbers as though the decimals are not there (like we do with whole numbers). If either number (or both) is negative, use the absolute value of each number when multiplying.
(4) Count the number of digits after the decimal places in the original problem, then move the decimal in your answer from (3) to the left that many places.

For example: $2.4 \times -0.136$
Though 2.4 is larger, place 0.136 on the top: 0**.**136

$$\begin{array}{r} \times\ 2.4 \\ \hline .3264 \end{array}$$

Since there are a total of 4 digits to the right of the decimal place in these numbers, move the decimal 4 places to the left after you multiply.

Memory Recall:

Dividing decimals:

Dividing with decimals is just like dividing with whole numbers, except now we must place the decimal before we divide. Recall: When multiplying decimals we "placed" the decimal at the end of the calculation.

First, let's remember the vocabulary for this problem: $2\overline{)8}^{\,4}$ 2 is the divisor, 8 is the dividend and 4 is the quotient. Remember to check to see if we have the right answer: Reverse the process, if 8 divided by 2 is 4, then 4 times 2 is 8.

What if we add a decimal to the divisor in the previous problem? The problem becomes $.2\overline{)8}$.

Our first step is to convert the .2 to a whole number by moving its decimal one place to the right. You must move the decimal in the dividend the same number of places you move it in the divisor! Recall: $8 = 8.0$

Therefore $.2\overline{)8} = .2\overline{)8.0} = 2\overline{)80.0}$

Move the decimal up and if you like, you may remove it from the divisor so you won't have to deal with it. Our problem becomes $2\overline{)80.}$; now start dividing as if the decimal isn't there.

$2\overline{)80}^{\,40.}$ so the answer is 40.

Example: $5.346 \div .12 = .12\overline{)5.346} = 12\overline{)534.6}$

Tip: After you bring the decimal up, remove the decimal from the divisor and divide as if they are whole numbers. The answer is 44.56.

Practice problems

1. Simplify: $16 \div 2 \cdot 4$

   A) 2
   B) $\frac{1}{2}$
   C) 8
   D) 32

2. Simplify: $(-2)^3 - 6^2$

   A) $-6$
   B) $-28$
   C) $-44$
   D) 44

3. Simplify: $4^2 + 4^2 \div 4^2$

A) 17
B) 9
C) 8
D) 2

4. Simplify: $2.4 \div 0.3 \cdot 8$

A) 1
B) 64
C) 6.4
D) 0.1

5. Simplify: $\left(1\frac{1}{4} - \frac{3}{8}\right) \div \frac{1}{4}$

A) $\frac{7}{8}$
B) $\frac{7}{32}$
C) $3\frac{1}{2}$
D) $\frac{2}{7}$

6. Simplify: $\frac{\left(16 - 8 \div 4\right)^2}{4}$

A) 64
B) 49
C) 7
D) 1

7. Simplify: $\frac{5^2 - 4(6) + 7}{6^2 + 2(-3) - 3(10)}$

A) Undefined
B) 0
C) 8
D) $\frac{1}{8}$

8. Simplify: $\dfrac{-\left|22-4^2\right|^2}{3(-8)+20}$

A) 15
B) 9
C) − 18
D) 18

9. Simplify: $\dfrac{3}{5}(-0.75)$

10. Simplify: $-4+31.2\div(-3)$

11. Simplify: $-3(-5-4)+2(6+8)$

12. Simplify: $3.62(4.02-6.1)$

13. Simplify: $10-3\left[(6+5)-(9+1)\right]+\sqrt{25}$

14. What is the first step to simplify this expression: $150+24\div3\cdot4-2$ ?

15. Simplify: $4-2(2-5)^2$

16. Simplify: $|-10|-|-8|$

17. Simplify: $\left(\dfrac{1}{2}+\dfrac{1}{3}\right)^2-\dfrac{5}{30}$

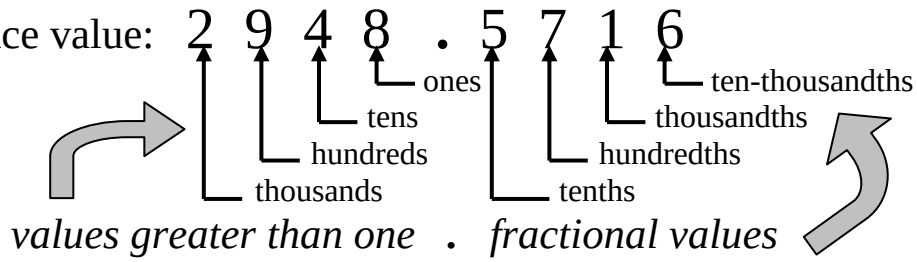
18. Simplify: $(-4)(-5)\div(-2)(5)$

19. Simplify: $-\left|3-(-6)\right|$

**III. Rounding off Decimals**

Memory Recall:

*Assumption*: When we do not see a decimal in a whole number it is assumed that it is **after** the last digit.
Example: 783 could be written as 783. 0




*Remember*: To round off a number to a specific column decide which of the following applies:

1. If the column following the specified column has a value that is LESS THAN 5, then keep the numeric value in the specified column followed by any necessary zeros.
2. If the column following the specified column is EQUAL TO or GREATER THAN 5, then add one to the numeric value in the specified column followed by any necessary zeros.

Example: 265.273 Round off to nearest tens.
The correct answer will be 270 because the digit *after* the tens column is 5 or higher.

Example: 265.273 Round off to nearest tenths.
The correct answer will be 265.3 because the digit *after* the tenths column is 5 or higher.

Example: 5089.8924 Round off to nearest thousandths.
The correct answer will be 5089.892 because the digit *after* the thousandths column is below 5.

Practice problems

1. Round off 0.254 to the nearest tenths: _____
2. Round off 0.903 to the nearest tenths: _____
3. Round off 0.094 to the nearest tenths: _____
4. Round off 0.82 to the nearest tenths: _____
5. Round off 0.05199 to the nearest tenths: _____
6. Round off 0.1436 to the nearest hundredths: _____
7. Round off 0.2852 to the nearest hundredths: _____
8. Round off 0.2981 to the nearest hundredths: _____
9. Round off 0.0067 to the nearest hundredths: _____
10. Round off 0.3908 to the nearest hundredths: _____
11. Round off 0.345 to the nearest thousandths: _____
12. Round off 0.2947 to the nearest thousandths: _____
13. Round off 0.0915 to the nearest thousandths: _____
14. Round off 0.9043 to the nearest thousandths: _____
15. Round off 0.08736 to the nearest thousandths: _____
16. Round off 149.59 to the nearest tens: _____
17. Round off 509.8 to the nearest tens: _____
18. Round off 650.42 to the nearest tens: _____
19. Round off 825 to the nearest tens: _____
20. Round off 700 to the nearest tens: _____
21. Round off 2407.45 to the nearest hundreds: _____
22. Round off 5028.6 to the nearest hundreds: _____
23. Round off 790.941 to the nearest hundreds: _____
24. Round off 208 to the nearest hundreds: _____
25. Round off 91828 to the nearest hundreds: _____
26. Round off 1234.567 to the nearest thousands: _____
27. Round off 39800 to the nearest thousands: _____
28. Round off 90987 to the nearest thousands: _____
29. Round off 2058.3 to the nearest thousands: _____
30. Round off 10000 to the nearest thousands: _____

**IV. Evaluating expressions**

Memory Recall:

Steps:

(1) Replace each **variable** (letter representing the unknown value) in the expression with the assigned value; use parentheses to avoid mistakes, especially with negative numbers.

Note: the value assigned to the variable remains constant throughout the problem, even if the variable appears more than once.

(2) Simplify the expression by applying the correct order of operations.

Practice problems

1. Evaluate the expression: $b^2 - 4ac$ if a = 3, b = − 5, c = 6

   A) − 47
   B) − 43
   C) − 53
   D) − 57

2. Evaluate the expression: $6x^3 + 6x^2 + 35$ for x = − 2

   A) 11
   B) − 25
   C) − 1
   D) 1

3. Evaluate the expression: $x^2 - 6y^2 - (x - y)$ for x = 4 and y = − 2

   A) 22
   B) − 14
   C) 26
   D) 34

4. Evaluate the expression: $6 - \frac{3x}{12}$ for x = 1

   A) $5\frac{3}{4}$
   B) $\frac{1}{4}$
   C) $-\frac{1}{2}$
   D) 4

5. Evaluate the expression: a – b + c if a = 12, b = − 8, and c = − 10

A) 14
B) 10
C) − 6
D) − 30

6. Evaluate the expression: $x^2\left(y-xy\right)$ for $x=\frac{1}{2}$ and $y=-\frac{1}{2}$

A) $-\frac{1}{2}$
B) $-\frac{1}{4}$
C) $-\frac{1}{16}$
D) 0

7. Evaluate the expression: $\frac{x-y}{4}$ when x = 7 and y = − 7

A) 0
B) undefined
C) $\frac{49}{4}$
D) $\frac{7}{2}$

8. Evaluate the expression: $\left|x-y^2\right|$ when x = 18 and y = − 5

A) 43
B) 7
C) − 7
D) 13

9. Evaluate: $-2x^2+3xy$ when x = − 2 and y = − 1

10. Evaluate: $-\left(m-n\right)^2$ for m = 4 and n = − 4

11. Evaluate: $5h-3g$ when h = 0.3 and g = 1.5

12. Evaluate: $5.63x-(.03)^2$ for x = 2

13. Evaluate: $\frac{1}{3}x-\frac{4}{7}y$ for x = 9 and y = 28

14. Evaluate: $-x+\frac{1}{3}y-z^2$ for $x=-2,\ y=\frac{3}{2},\ z=\frac{2}{3}$

15. Evaluate: $5a+b$ when a = − 4 and b = 2.5

16. Evaluate: $|-a|$ when a = 9.12

17. Evaluate: $-|4p+4k|$ for p = − 8, k = 3

18. Evaluate: $2x+5y$ when $x=\frac{1}{4}$ *and* $y=\frac{2}{15}$

**V. Simplifying expressions using the distributive property; combining like terms**

Memory Recall:

Only add or subtract **like terms** (terms with exactly same variable part, raised to the same exponent).

Examples:

6x and 7x are like terms; $8x^2$ and -9x are unlike terms (notice that the exponents on the variable are different).

Once you identify the like terms, just add or subtract the coefficients (the numeric part). If needed, apply the distributive property when multiplying: $a(b + c) = ab + ac$

Practice problems

1. Which of the following reflects the distributive property?

   A) $x(x+y) = x^2 + xy$

   B) $x^2 y = x \cdot x \cdot y$

   C) $(xy)^2 = x^2 y^2$

   D) $x + (y+z) = (y+z) + x$

2 Determine which of the following are like terms: $5x + 8y - 5x^2 - 8y + 9y^2$

   A) 5x and $-5x^2$
   B) $-8y$ and $9y^2$
   C) $-5x^2$ and $9y^2$
   D) +8y and – 8y

3. Simplify: $-9x + 2x$

   A) $-7x$
   B) $-7$
   C) $-11x$
   D) 11x

4. Simplify: $5y^2 - 6 + 7y^2 + 3$

   A) 9
   B) $12y^2 - 3$
   C) $12y^2 + 3$
   D) $9y^2$

5. Simplify: $-7(x+5)-3(x-6)$

A) 10x – 17
B) −10x + 17
C) −10x – 17
D) 10x + 17

6. Simplify: $11x^5\left(-9x^7-3x^5\right)$

A) $-132x^5$
B) $-99x^{12}-33x^{10}$
C) $-132x^{12}-132x^{10}$
D) $-99x^{12}-3x^5$

7. Simplify: $\frac{1}{3}(6x-9)+5(3-2x)$

A) 28x – 12
B) −8x + 12
C) 8x – 17
D) 28x + 12

8. What is the first step in simplifying this expression: $9-2(3x+7)$?

9. Simplify: 4a – 3b – 7a + b

10. Simplify: 4(x – 5) – 2(−3x – 1)

11. Simplify: $4(2x^2 - 13x + 15) - 4(2x^2 - 13x + 15)$

12. Simplify: −3x(4x – 6y) + 2y(6y – 8)

13. Simplify: 0.03[x – (−4)] – 0.06(3x – 7)

14. Simplify: 2.5x – 3.2y + 7 + 5.2y – 1.8x – 10

15. Simplify: $\frac{2}{5}(5x-3)-\frac{1}{3}(12x-5)$

16. Simplify: 6 (a – 3) + 9 (a + 3) −4a

17. Simplify: $6x^2 - 7x^2y + 8y^2 - 8x^2y - 10y^2 - 9xy^2$

18. Explain the mistake for the following and then work the problem correctly.
$(3x^3 + 9x) + (6x^3 – 8x) = 9x^6 + x^2$

## VI. Solving linear equations

Memory Recall:

**Equation**: Two expressions set equal to each other (equations have an "=" sign)
**Goal**: Find the value of the variable that makes the equation true.
**Strategy**: Isolate the variable, that is, leave it by itself on one side of the equation. Do this by applying inverse operations.
**Check** your answer.
**Note**: Whatever you do to one side of the equation, you MUST do to the other side.

Practice problems

1. Solve: $7x - 9 = 19$

   A) $x = -9.5$

   B) $x = 1\frac{3}{7}$

   C) $x = -\frac{2}{19}$

   D) $x = 4$

2. Solve: $2x - 7 = 3x + 7$

   A) $x = 0$
   B) $x = -14$
   C) $x = 14$
   D) $x = 49$

3. Solve: $2(x - 10) = x - 10$

   A) $x = -10$
   B) $x = 0$
   C) $x = 10$
   D) $x = 20$

4. Solve: $2(x + 3) = x + 4$

   A) $x = -2$

   B) $x = -\frac{1}{2}$

   C) $x = \frac{10}{3}$

   D) $x = 5$

5. Solve: $\frac{5}{6}x - 8 = 3$

A) $x = 6$

B) $x = -6$

C) $x = \frac{66}{5}$

D) $x = \frac{55}{6}$

6. Solve: $-x = -10$

A) $x = 10$

B) $x = -10$

C) $x = \frac{1}{10}$

D) $x = -\frac{1}{10}$

7. Solve: $-\frac{4}{3}x = \frac{3}{8}$

A) $x = -\frac{1}{2}$

B) $x = \frac{9}{32}$

C) $x = -\frac{9}{32}$

D) $x = -2$

8. Solve: $\frac{5}{18}x = -\frac{1}{9}$

A) $x = 5\frac{5}{8}$

B) $x = -\frac{7}{18}$

C) $x = -\frac{2}{5}$

D) $x = -\frac{2}{9}$

9. Solve: $x - 48 = -36$

10. Solve: $-3x + 5 = 14$

11. Solve: $a - 3.45 = 8.90$

12. Solve: $4(2z - 5) = 7(z + 4)$

13. Solve: $-8b + 7 + 6b = -3b + 12$

14. Solve: $3(x - 5) = 20$

15. Solve: $2x - 3.45 = 6.60$

16. Solve: $-3(x + 2) = 30(0.8)$

17. Solve: $-6x - 8 = 2x - 6$

18. Solve: $8(x - 4) = 9(3x - 2)$

19. Solve: $1.5x - 2.5 = 3.5x + 13.7$

20. Solve: $\frac{1}{2}(4x-8) = \frac{2}{3}(9x+15)$

## VII. Operations with polynomials

Memory Recall:

Polynomial terms can have variables or not. The variables can only have whole-number exponents (the exponents on the variables cannot be negative, square roots, or fractions and variables cannot appear as denominators).

**Types of Polynomials**:

Monomial: Polynomial containing just one term (examples: $5x^3$, -8x, 6)
Binomial: Contains two terms (examples: $x + 3$, $5x^2 – 6x$)
Trinomial: Contains three terms (examples: $6x^2 – x + 3$, $5x^3 – 2x + 1$)

Memory Recall:

Combining Like Terms:

Only add or subtract *like terms.*

Once you identify the like terms, simply add or subtract the coefficients (the number in front of the variable).

When subtracting polynomials, remember you are adding the opposite, therefore, you must change the signs of all terms in the subtrahend (the polynomial being subtracted)

Multiplying Polynomials:

1. (monomial)(monomial) → multiply coefficients and apply the product rule for exponents. Recall: When multiplying like bases we add their exponents.

   Example: $(3x)(2x) = 6x^2$

2. (monomial)(polynomial) → Apply the distributive property.

Practice problems

1. Which of these polynomials has the most terms?

   A) binomial
   B) monomial
   C) trinomial

2. Which of the following is a binomial?

   A) $(-3)(x^2)$
   B) $-3x^2 - 3 - x$
   C) $-3x \cdot x$
   D) $-3 + x^2$

3. How many like terms does the following polynomial have?
   $5t^2 + 5t^3 - 7t^6 - 5t^2$

   A) 4
   B) 3
   C) 2
   D) none

4. Simplify: $a^3 \cdot a^2$

   A) $a^5$
   B) $a^1$
   C) $a^6$
   D) $a^{23}$

5. Simplify: $(-3x^2)^2$

   A) $-9x^2$
   B) $-9x^4$
   C) $9x^2$
   D) $9x^4$

6. Classify the following polynomial: $k^3 + 3k^2 - k$

   A) Monomial
   B) Binomial
   C) Trinomial
   D) None of these

7. Simplify: $(10x^2 – 5x – 7) – (4x^2 – 11x – 2)$

A) $6x^2 – 16x – 9$
B) $6x^2 + 16x – 9$
C) $6x^2 – 16x + 9$
D) $6x^2 + 6x – 5$

8. Simplify: $(3x^2 – 6x + 1) – (– 7x^2 + 8x – 1)$

9. Simplify: $– 3y^2 (5y^3 – 4y^2 – 3y + 2)$

10. Simplify: $(2x^3) (2x)^3$

11. Simplify: $(2x^2 – 10x + 1) – (– 3x^2 + 2x – 8)$

12. Simplify: $– 3(2x^2 – 7x + 1) + 4(2x^2 – x + 1)$

13. Simplify: $(8x^2 + 5x – 7) – (2x^2 – 5x + 2)$

14. Explain the mistake, then work the problem correctly.
$–4x^2y \cdot 9x^9y^9 = –36x^{18}y^9$

15. Simplify: $(2x + 6) + (7x – 6) – (8x + 2)$

## VIII. Determining perimeter, area, and volume of geometric shapes.

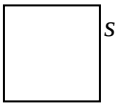
Memory Recall:

**Perimeter**: Distance around an object (measured in single/linear units).
To find the perimeter: Sum of the lengths of all its sides.

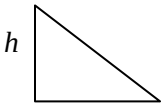
**Area**: The amount of surface an object covers (measured in square units). The area of a figure measures the size of the region enclosed by the figure. Formulas to remember:

Area of a rectangle: $A = l \cdot w$

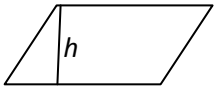

Area of a square: $A = s \cdot s$




Area of a Triangle: $A = \frac{1}{2} b \cdot h$

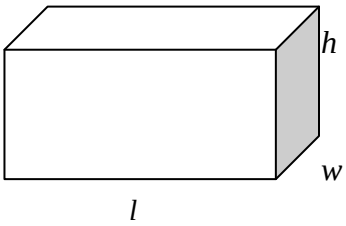



Area of a Parallelogram: $A = b \bullet h$




**Volume**: Measures how much a container can hold (capacity).
The volume of a solid figure is measured in cubic units; that is, the number of cubes required to fill it completely, like blocks in a box.
The volume of a rectangular solid ("rectangular box") is found by multiplying:
(length)(width)( height)

$V = l \cdot w \cdot h$



Practice problems

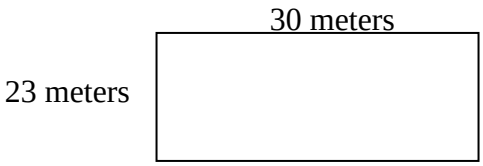
1. Find the perimeter of a square that is 19 inches on each side.

   A) 361 inches
   B) 361 square inches
   C) 76 inches
   D) 76 square inches

2. Find the perimeter of a rectangle with a length of 6 meters and a width of 5 meters.

   A) 30 meters
   B) 11 square meters
   C) 22 meters
   D) 30 square meters

3. Find the perimeter.




   A) 53 meters
   B) 106 meters
   C) 690 meters
   D) 83 meters

4. Determine which of the following is measured using linear units.

   A) area
   B) perimeter
   C) volume

5. The perimeter of a fence is 48 meters. If the width is 2 meters less than the length, find the width.

   A) 13 meters
   B) 25 meters
   C) 11 meters
   D) 9 meters

6. Find the area of a rectangle with a length of 10 inches and a width of 3 inches.

A) 30 inches
B) 30 square inches
C) 15 inches
D) 15 square inches

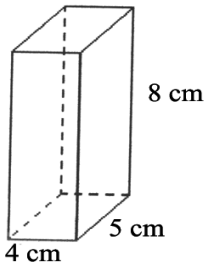
7. Find the area of a triangle that has a base of 20 inches and a height of 11 inches.

A) 220 inches
B) 220 square inches
C) 110 inches
D) 110 square inches

8. Find the area of a triangle if the base is $\frac{2}{3}$ cm and the height is $\frac{5}{8}$ cm.

A) $\frac{5}{24}$ square centimeters
B) $\frac{5}{12}$ square centimeters
C) $\frac{1}{4}$ square centimeters
D) $\frac{5}{7}$ square centimeters

9. Find the volume.




A) 160 square centimeters
B) 44 cubic centimeters
C) 17 cubic centimeters
D) 160 cubic centimeters

10. Find the area of a square with a side length of 10 inches.

11. Determine which of the following is measured using cubic units: perimeter, area, or volume.

12. Find the side length of a square that has an area of 81 square inches.

13. A rectangular box is 17 ft long, 10 ft wide and 8 ft tall. Find its volume.

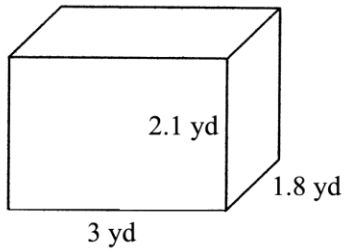
14. Find the perimeter of a square where each side is 5 feet.

15. Find the area of a rectangle with a length of 6 feet and a width of 4 feet.

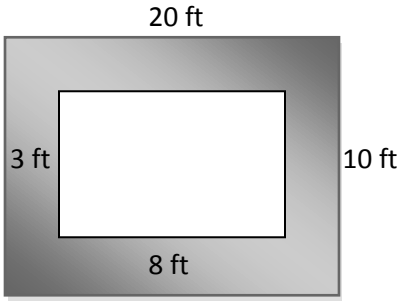
16. Find the volume of a rectangular box that has a length of 6 inches, a width of 9 inches, and a height of 4 inches.

17. Find the volume of a cube where each side measures 5 centimeters.

18. Find the volume.




19. Find the area of the shaded region.



## IX. Application problems

Memory Recall

Steps:

1. Read and try to understand the problem. Do you know what the problem is about? This includes being able to identify the given data, the unknown, the question, and any relevant or irrelevant data.
2. Develop a plan of action: What are your options? Use diagrams, organize data (tables, charts); rewrite in your own words; relate math terms to everyday language; choose appropriate letters for unknowns; look for patterns; relate to another problem; change % to decimal for calculations
3. Translate the situation explained in words into a mathematical expression using symbols; develop a relevant equation. Disregard any unit of measurement until the end
4. Carry out the plan! Are you making progress? Should you reconsider? Check each step for "friendly mistakes." Is this making sense?
5. *Examine* your solution. Is it reasonable? Does it answer the question?

Practice problems

1. John bought 5/8 yards of fabric at $4 a yard. How much did he pay for the fabric?

   A) $1.56
   B) $2.50
   C) $5.20
   D) $6.25

2. Suki bought a car with a down payment of $1500. She will pay off her car in 48 months. Using "x" for the monthly payment, which of the following shows the total cost for her car?

   A) 48x
   B) 1500 – 48x
   C) 48x – 1500
   D) 1500 + 48x

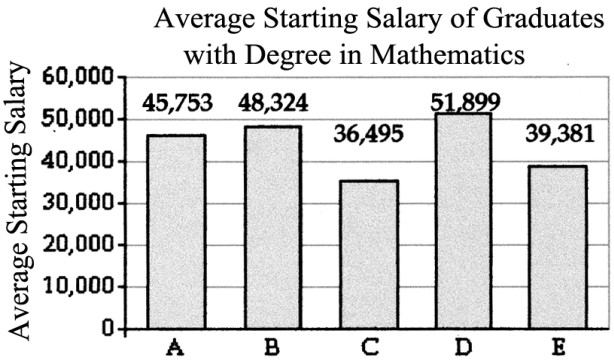
3. Shawn has a balance of $157.62 in his bank account. He pays a $86.92 power bill, a $57.23 cell phone bill, and $325.00 for rent. On payday, he will receive a check in the amount of $250.34. How much is in Shawn's account after all of the transactions?

   A) $61.19
   B) – $61.19
   C) $161.89
   D) – $161.89

4. The weight of a certain gas is $2\frac{1}{4}$ kilograms per cubic meter. How many cubic meters would be occupied by 90 kilograms of the gas?

A) 40 cubic meters
B) 45 cubic meters
C) 2025 cubic meters
D) $\frac{1}{40}$ cubic meters

5. The following graph shows the average starting salary for graduates of five different schools with a degree in mathematics.




Round the average starting salary for graduates at school A to the nearest thousand.

A) $46,000
B) $47,000
C) $46,500
D) $45,000

6. Last year the hatchback model of a new car cost $18,759. This year's model costs $21,779. How much more does this year's model cost?

A) $39,538
B) $40,538
C) $3020
D) $2920

7. Sam is driving 509 miles to get home from college. If he drives 317 miles the first day, how many miles remain?

A) 836 miles
B) 192 miles
C) 182 miles
D) 826 miles

8. During the last four months of a recent year, Annie's Natural Food Store reported the following sales.

| | |
|---|---|
| September | $3082 |
| October | $2240 |
| November | $3490 |
| December | $4046 |

How much more were the sales in December than the sales in November?

A) $7536
B) $556
C) $7436
D) $456

9. The list price of a car is $12,311. The manufacturer offers a rebate of $944. What is the final price of the car?

A) $11,367
B) $11,267
C) $13,155
D) $13,255

10. A math professor is teaching two classes. The first class has 100 people enrolled and the second class 75 people enrolled. If three-fourths of the first class pass the exit exam, and two-fifths of the second class pass, how many of the professor's students passed the exit exam?

A) 63
B) 125
C) 150
D) 105

11. Jill would like to make a purchase at a clothing store. The charges for the items that she has selected are shown below. If she has $80, does she have enough? If not, then how much more does she need?

| | |
|---|---|
| Jeans | $32.95 |
| Sweater | $45.99 |
| | |
| Tax | $6.32 |

A) No; $5.26
B) No; $0.05
C) Yes
D) No; $4.05

12. A community garden contains 35 rectangular plots each measuring 4 yd. by 9 yd. What is the total area available for gardening?

A) 1260 square yards
B) 910 square yards
C) 36 square yards
D) 1295 square yards

13. Rosa averages 31 miles per gallon of gasoline in her car. How far can she travel on 14 gallons of gasoline?

A) 45 miles
B) 434 miles
C) 54 miles
D) 443 miles

14. David's company has to ship 3850 boxes of sprinklers. If a truck can hold 550 boxes, how many truckloads does he need to ship all the boxes?

A) 5 truckloads
B) 8 truckloads
C) 7 truckloads
D) 6 truckloads

15. Mr. and Mrs. Jones borrow $5800 to buy a used car. The loan is to be paid off in 20 equal monthly payments. How much is each payment?

A) $5820
B) $5780
C) $290
D) $29

16. What will it cost to buy ceiling molding to go around a rectangular room with length 16 ft and width 9 ft? The molding costs $2 per linear foot.

A) $100
B) $50
C) $36
D) $64

17. A high school basketball team has 11 members. If 5 of the team members are juniors, find the fraction of the team members that are juniors.

A) $\frac{11}{5}$

B) $\frac{6}{11}$

C) $\frac{5}{11}$

D) $\frac{11}{6}$

18. In a microbiology class of 47 students, 24 students are graduate students. What fraction of the students are <u>not</u> graduate students?

A) $\frac{47}{23}$

B) $\frac{47}{24}$

C) $\frac{24}{47}$

D) $\frac{23}{47}$

19. When Maria finished medical school she owed \$48,000 in student loans. She repaid $\frac{2}{3}$ of the total amount within two years of graduating. How much did she repay within two years of graduating?

A) \$28,800
B) \$32,000
C) \$35,200
D) \$3200

20. Rashid walked $\frac{4}{5}$ of a mile to the store and then another $\frac{8}{7}$ miles to his friend's house. How far did he walk?

A) $1\frac{33}{35}$ miles

B) 1 mile

C) $1\frac{1}{35}$ miles

D) $1\frac{9}{35}$ miles

21. There were $26\frac{1}{2}$ yards of wire on a spool. After a customer bought $9\frac{7}{8}$ yards of wire from the spool, how many yards were left?

A) $16\frac{5}{8}$ yards

B) $17\frac{5}{8}$ yards

C) $15\frac{5}{8}$ yards

D) 16 yards

22. A restaurant bill of $91.57 was shared equally by 6 people. How much was each person's share? Round your answer to the nearest cent.

A) $15.26
B) $16.26
C) $15.37
D) $16.37

23. Tony had $3\frac{1}{2}$ cups of flour and used $1\frac{1}{5}$ of it. How much flour did Tony have left?

24. Tina wants to buy a new LCD-TV that costs $1,250. The sales tax in Orange County is 6.5%. How much tax will Tina pay for the TV?

25. A student in Professor Colick's class solved the following problem. Prof. Colick marked it wrong. Explain the mistake and provide the correct answer.

$87 - 5(3 + 5)$
$87 - 5\ (8)$
$82\ (8)$
656

26. Nashali found a dress that she really liked which originally sold for $78. The dress was discounted 30%. Using 'P' as the amount she will have to pay for the dress (excluding sales tax), write an equation that describes this transaction.

27. Ray decided to rent an apartment with three other friends. Ray agreed to pay the security deposit of $150 in addition to his share of the first month's rent. All four of them agreed to contribute equally toward the monthly rent. Using 'R' as the total rent due each month, translate this problem into an algebraic expression that will show how much Ray will pay for the <u>first</u> month.

28. Jim has $303.75 to spend. He will buy groceries from Walmart which will cost $99.98, a CD player from Best Buy during their door buster sale for $44.99, and a gift card from Barnes and Noble for $125.00. Estimate the amount of money he will have left over to the nearest dollar amount. Find the exact amount of money he will have left over.

29. $\frac{2}{7}$ of a lot is to be landscaped. $\frac{4}{5}$ of the landscaped area is to be covered in sod. What fraction of the lot is to be covered in sod?

30. Translate the following into an equation.

"Ten more than the product of eight and x is the same as six times the sum of x and seven."

31. Gina drove 600 miles in 12 hours. Find the speed at which she was travelling.

32. The total for a meal including a 20% tip is $24.96. What was the price of the meal before the tip was added?

33. Natalie needs to put a decorative border in her sister's bedroom. The room is 12 ft by 8 ft. How much border will she need?

34. Jose wants to construct a peg board in his garage so he can hang his tools. The wall he chooses to use in his garage measures 17 ft in length and 22 ft wide. How much peg board will he need to buy?

# By Topics: Final Exit Exam Answers

## I. Comparing Real Numbers

1. A

2. B

3. B

4. A

5. B

6. C

7. A

8. C

9. B

10. – 34

11. 4.5

12. 3.256

13. $\frac{3}{4}$

14. – 3.413265

15. $\frac{6}{9}$

16. They are not equal because for $-3^2$, only the 3 is being squared not the negative.
$(-3)^2 = (-3)(-3)$; both the negative and the 3 are squared.

17. No; with absolute value you cannot multiply the negatives like you can with parenthesis.
$-|-3| = -3$

18. $\frac{7}{10}, \frac{9}{12}, \frac{14}{18}$

19. No. $|-5| = 5$ and $-|5| = -5$

## II. Order of Operations with Rational Numbers

1. D

2. C

3. A

4. B

5. C

6. B

7. A

8. B

9. –0.45 or $-\frac{9}{20}$

10. –14.4

11. 55

12. –7.5296

13. 12

14. 24 ÷ 3

15. – 14

16. 2

17. $\frac{19}{36}$

18. –50

19. – 9

## III. Rounding Off Decimals

1. 0.3
2. 0.9
3. 0.1
4. 0.8
5. 0.1
6. 0.14
7. 0.29
8. 0.30
9. 0.01
10. 0.39
11. 0.345
12. 0.295
13. 0.092
14. 0.904
15. 0.087
16. 150
17. 510
18. 650
19. 830
20. 700
21. 2400
22. 5000
23. 800
24. 200
25. 91800
26. 1000
27. 40000
28. 91000
29. 2000
30. 10000

## IV. Evaluating Expressions

1. A
2. A
3. B
4. A
5. B
6. C
7. D
8. B
9. $-2$
10. $-64$
11. $-3$
12. 11.2591
13. $-13$
14. $\frac{37}{18}$
15. $-17.5$
16. 9.12
17. $-20$
18. $\frac{7}{6}$

## V. Simplifying Expressions Using the Distributive Property and Combining Like Terms.

1. A

2. D

3. A

4. B

5. C

6. B

7. B

8. Distribute the –2 throughout the parenthesis.

9. $-3a - 2b$

10. $10x - 18$

11. 0

12. $-12x^2 + 18xy + 12y^2 - 16y$

13 $-0.15x + 0.54$

14. $0.7x + 2y - 3$

15. $-2x + \frac{7}{15}$

16. $11a + 9$

17. $6x^2 - 15x^2y - 2y^2 - 9xy^2$

18. The student added the exponents. The answer should be $9x^3 + x$.

## VI. Solving Linear Equations.

1. D
2. B
3. C
4. A
5. C
6. A
7. C
8. C
9. $x = 12$
10. $x = -3$
11. $x = 12.35$
12. $x = 48$
13. $x = 5$
14. $x = \frac{35}{3}$
15. $x = 5.025$
16. $x = -10$
17. $x = -\frac{1}{4}$
18. $x = -\frac{14}{19}$
19. $x = -8.1$
20. $x = -\frac{7}{2}$

## VII. Operations with Polynomials

1. C

2. D

3. C

4. A

5. D

6. C

7. D

8. $10x^2 - 14x + 2$

9. $-15y^5 + 12y^4 + 9y^3 - 6y^2$

10. $16x^6$

11. $5x^2 - 12x + 9$

12. $2x^2 + 17x + 1$

13. $6x^2 + 10x - 9$

14. The student multiplied the exponents instead of adding them. The correct answer is $-36x^{11}y^{10}$

15. $x - 2$

## VIII. Determining Perimeter, Area, and Volume of Geometric Shapes

1. C
2. C
3. B
4. B
5. C
6. B
7. D
8. A
9. D
10. 100 square inches (100 $in^2$)
11. Volume
12. 9 inches (in)
13. 1360 cubic feet (1360 $ft^3$)
14. 20 feet (ft)
15. 24 square feet (24 $ft^2$)
16. 216 cubic inches (216 $in^3$)
17. 125 cubic centimeters (125 $cm^3$)
18. 11.34 cubic yards (11.34 $yd^3$)
19. 176 square feet (176 $ft^2$)

## IX. Application Problems

1. B
2. D
3. B
4. A
5. A
6. C
7. B
8. B
9. A
10. D
11. A
12. A
13. B
14. C
15. C
16. A
17. C
18. D
19. B
20. A
21. A
22. A

23. $2\frac{3}{10}$ cups

24. $81.25

25. The student subtracted the 87 and 5 before multiplying the 5 and 8. The student should do the following 87 – 5 (8) = 87 – 40 = 47

26. P = 78 – .30(78)

27. $\frac{R}{4}+150 \quad OR \quad \frac{1}{4}R+150$

28. $34; $33.78

29. $\frac{8}{35}$

30. 8x +10 = 6 (x + 7)

31. 50 mph

32. $20.80

33. 40 ft

34. 374 square feet

# By Chapters: Final Exit Exam Review

**Chapter 1**

Simplify:

1. $(10-8)^2 \cdot [4^2 \div (6+2)]$
2. $[15 \div (11-6) + 2^2] + (5-1)^2$
3. $2 + 10 \div 2 \cdot 7 - 7 + 3$
4. $10 - 6 + 4 \div 2$
5. $16 \div 8 \cdot 4 - 2 + 2$

Include units in your answers to the following questions:

6. Find the area of a square with sides of 7ft.
7. Find the perimeter of a square with sides of 12in.
8. Find the area of a rectangle with length 12 meters and width 4 meters.
9. Find the perimeter of a rectangle with a length of 10 miles and a width of 8 miles.

**Chapter 2**

Simplify the following expressions:

10. $-11 - (-2) + (-2)$
11. $-1 + (-21) - (-5) - 12$
12. $-5 + (-6) + (-7) - 8 - (-9)$
13. $|-11| - |-15|$
14. $|-30| + |15|$
15. $|-4| - |-5| + |-6|$

**Chapter 3**

Solve the following equations:

16. $x - 15 = 8$
17. $y + 12 = 4$
18. $5z + 18 = 3$
19. $12a + 6 = 6$
20. $-3(x-1) - 10 = 12 + 8$
21. $2(z-2) = 5z + 17$

**Chapter 4**

Simplify:

22. $\frac{-7}{3} + 8$
23. $\frac{10}{3} + \frac{12}{4}$
24. $\frac{11}{2} - \frac{16}{3}$

25. $\frac{-5}{6} - \frac{5}{8}$
26. $\frac{6}{5} \cdot \frac{4}{5}$
27. $\frac{20}{16} \cdot \frac{6}{9}$
28. $\frac{8}{3} \div \frac{6}{4}$
29. $\frac{15}{7} \div \frac{9}{14}$

Include units in your answers to the following questions:

30. Ray has two scarves. If one is $\frac{2}{3}\ yards$ and the other is $\frac{1}{5}\ yard$, how long are the two scarves together?
31. A cat eats $\frac{1}{8}$ a can of cat food before taking a nap. When she wakes up, she eats another $\frac{1}{3}$ of the can. How much did she eat in total?
32. It's Saturday and Ray has to mow his yard. He mows $\frac{1}{5}$ of his yard and the phone rings. After speaking with his sister he returns to his task he then mows another $\frac{1}{4}$. How much of his yard has he mowed?

Compare the following fractions:

33. $\frac{2}{3} \quad \frac{5}{8}$
34. $-\frac{2}{3} \quad \frac{1}{4}$
35. A family spends $\frac{3}{50}$ of its income on pet supplies. If their income is "I," write an expression that represents how much is spent on pet supplies.
36. A man spends $\frac{1}{5}$ of his paycheck on a fancy dinner and $\frac{2}{25}$ on a movie. If his paycheck is "P," write an expression that represents how much has been spent.

**Chapter 5**

Simplify:

37. $9.67 - 4.321$
38. $8.01 - 9.1$
39. $-1.21 - 7.95$
40. $(1.6)(-.04)$
41. $(-4.8)(-5.13)$

Compare the following:

42. $7.4 \quad \frac{36}{5}$
43. $1.9 \quad \frac{11}{5}$
44. $1.7 \quad \frac{16}{9}$

Round the following:

45. 215.546 ; round to the nearest hundredths
46. 2.96701 ; round to the nearest tenths

**Chapter 7**

Translate the following into algebraic equations:

47. What percent of 40 is 30?
48. What is 10% of 75?
49. 36 is 60% of what?

Solve:

50. A television set normally costs $1200. The store discounts this item by 30%. Find the discounted price.
51. If a $40 meal is discounted 15%, how much would you have to pay?
52. A jewelry sales person makes a 15% commission. If she sells a $600, how much does she make?
53. You want to buy a $140 phone in a state with 6% sales tax. How much will pay, including tax?
54. If you invest $700 at 5% interest at 3 years, how much interest will you earn? How much will be in the account?

**Section 9.3, Chapter 10**

55. Find the volume of a cube with sides measuring 4 meters.
56. Find the volume of a rectangular box with length 5in, a width of 10in and a height of 1in.
57. Find the volume of a rectangular box with length 8ft, height 12.5ft and width 7ft.

For each of the following, determine whether it is a monomial, a binomial, a trinomial or none of these:

58. $5x^3y^3$
59. $5x^3y^3 - 176$
60. 15
61. $\frac{3}{7}y^{50} - 11a^{10} - 45h^5 + p^2$
62. $5a^7 - 176 + z$
63. $\frac{21}{x^6}$

Multiply:

64. $-6x^5(5x^4 - 6x^6 + x^2 + 4)$
65. $x^2(54 - x^3)$

Combine Like terms:

66. $12x - 14y + 12 - 2x - 14y + 8$
67. $x^2 + 4x^5 - 36 + 16 - 14x^5 + 4x^2$

Simplify:

68. $5(-2x + 13z) - 2(5x + 30z)$
69. $7(-2x + 13z + 5) - 3(5x + 30z + 11)$
70. $(3a^{14} - 6a - 7) - (18a^{14} - 13 + 10a)$
71. $(3y^6 - 11b + 2) + (18y^6 + 8 - 8b)$

Evaluate the expression:

72. Find the value of the expression $x + y - z$ when x= 10 ; y = -2 ; z = 5
73. Find the value of the expression $x + y - z$ when x= -8 ; y = 3 ; z = -1 5
74. Find the value of the expression $6y - 3y + 1$ when y = 2
75. Find the value of the expression $5g^2 - 3g + 1$ when g = -3
76. Find the value of the expression $2x^2 - xy + y^2$ when x = 3 and y = -2

Answer the following questions:

77. If the height (h), in feet, of an object dropped from a tower is approximated by the following equation $h(t) = -5t^2 + 800$ and *t* represents time in seconds, how high is the object 2 seconds after it is dropped?
78. If the height (h), in feet, of an object dropped from a tower is approximated by the following equation $h(t) = -5t^2 + 800$ and *t* represents time in seconds, how high is the object 4 seconds after it is dropped?

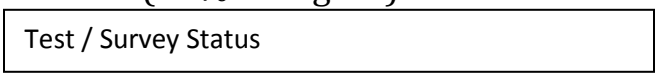
**By Chapters: Final Exit Exam Review Answers:**

1. 8
2. 23
3. 33
4. 6
5. 8
6. 49 sq. ft.
7. 48 inches
8. 48 sq. meters
9. 36 miles
10. -11
11. -29
12. -17
13. -4
14. 45
15. 5
16. x = 23
17. y = -8
18. z = -3
19. a = 0
20. x = -9
21. z = -7
22. $\frac{17}{3}$
23. $\frac{19}{3}$
24. $\frac{1}{6}$
25. $-\frac{35}{24}$
26. $\frac{24}{25}$
27. $\frac{5}{6}$
28. $\frac{16}{9}$
29. $\frac{10}{3}$
30. $\frac{13}{15}$ *yards*
31. $\frac{11}{24}$ *cans*
32. $\frac{9}{20}$ *of his yard*
33. >
34. <
35. $\frac{3}{50}I$
36. $\frac{1}{5}P+\frac{2}{25}P$ *or* $\frac{7}{25}P$
37. 5.349
38. -1.09
39. -9.16
40. -0.064
41. 24.624
42. >
43. <
44. <
45. 215.55
46. 3.0
47. $x(0.01)(40)=30$
48. $x=10(0.01)(75)$
49. $36=60(0.01)x$
50. $840
51. $34
52. $90
53. $148.40
54. $105: $805
55. 64 cu. meters
56. 50 cu. inches
57. 700 cu. feet
58. Monomial
59. Binomial
60. Monomial
61. None of these
62. Trinomial
63. None of these
64. $-30x^9+36x^{11}-6x^7-24x^5$
65. $54x^2-x^5$
66. $10x-28y+20$
67. $5x^2-10x^5-20$
68. $-20x+5z$
69. $-29x+z+2$
70. $-15a^{14}-16a+6$
71. $21y^6-19b+10$
72. 3
73. 10
74. 7
75. 55
76. 28
77. 514 feet
78. 274 feet

## How to Access Blackboard

1. Access Blackboard at online.valenciacc.edu/.
2. Login using your **ATLAS account User name and Password**.
3. On the right side you will see a list of all your Blackboard courses. Click on your Developmental Math I course.
4. When you open your Developmental Math I course you will see all the contents listed in the center of the screen.
5. Scroll down to the part that you want to work on and click on it.
6. **Except for the Final Exit Exam** you may do all of the reviews and practices as many times as desired.

## Final Exit Exam (Last choice on the CONTENT page):

1. This exam can ONLY be taken in the assigned Testing Area.
2. Passing score is 24 or more correct (80% or higher).
3. Click on the box that says: 


   **This will allow you to see which questions you have saved.** A white box means that question has NOT been saved. A gray box means you have saved that question.
4. Save your answer after working **each** question on this multiple choice test which turns the box gray.
5. NOTE: You may at any time change your answer to any question. If you change any answer, be sure to save it **again**.
6. After you have completed the exam:

   A. Click on Save All Answers. This will ensure that all your answers have been recorded as last worked.

   B. Click on Save and Submit. If all questions have NOT been answered the program will remind you to go back and complete the unanswered questions.
7. After you Save and Submit the program will tell you that your exam has been submitted and ask you if you want the results.
8. If you want to see the results of the exam than click on **OK** at the bottom right side of the page.

# Tips for multiple choice math questions

- **Data Dump**. Before you begin your test, write down any information on your scratch paper that you are afraid you might forget during the test. This might be formulas, examples, steps, or anything else you want to remember.

- **Do the "easy" problems first.**

- **Read the instructions** before you begin answering questions.

- **Work the problem before you look at the choices!** If you do this you are less likely to be thrown off or "mislead" by the possibilities. Read all your choices before making a decision.

- **If your answer does not match any of the choices come back to it later.** When you rework the problem do NOT look at your original work, rather do the problem as though it is a new question.

- **Make estimates for your answers and see if they are reasonable.**

- **Does your answer fit the question?**

- **Take a few mental breaks during the test.** Stop for a moment, shut your eyes and take some deep breaths.

- **If you have practiced for a test you probably know the type of careless mistakes that you generally make.** The Data Dump can be helpful in preventing careless mistakes.

- **When in doubt with 2 answers your FIRST choice is normally the better option.**

- **Make your best guess on each question** since most tests do NOT have a penalty for guessing.

- **Check your answers if time permits.**

- **Be confident and think positively!**

| Final Exam Review Booklet Section | Corresponding Final Exit Exam Questions |
|---|---|
| Section I: Comparing Real Numbers | 10, 11 |
| Section II: Order of Operations | 1, 2, 3, 4, 5, 6, 7, 8 |
| Section III: Rounding Off Decimals | 29, 30 |
| Section IV: Evaluating Expressions | 9 |
| Section V: Simplifying Expressions using the Distributive Property, Combining Like Terms | 22, 23, 24 |
| Section VI: Solving Linear Equations | 20, 21 |
| Section VII: Operations with Polynomials | 25, 26, 27, 28 |
| Section VIII: Determining Perimeter, Area and Volume | 17, 18, 19 |
| Section IX: Applications | 12, 13, 14, 15, 16 |