MAT 1033C -- Martin-Gay
Intermediate Algebra
Chapter 4 (4.1, 4.2, 4.3, 4.4)
Practice for the Exam

Name_____
Date _____
Day/Time: _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Fill in the blank with one of the words or phrases listed below.

matrix	**consistent**	**system of equations**
solution	**inconsistent**	**square**

1) Two or more linear equations in two variables form a _____. 1) _____

A) system of equations B) solution
C) square D) matrix

2) A _____ of a system of two equations in two variables is an ordered pair that makes both equations true. 2) _____

A) matrix B) solution C) square D) consistent

3) A(n) _____ system of equations has at least one solution. 3) _____

A) square B) matrix C) consistent D) inconsistent

4) A(n) _____ system of equations has at no solution. 4) _____

A) matrix B) inconsistent C) square D) consistent

5) If a matrix has the same number of rows and columns, it is called a _____ matrix. 5) _____

A) square B) consistent C) solution D) inconsistent

6) A _____ is a rectangular array of numbers 6) _____

A) matrix B) square
C) system of equations D) solution

Determine whether the ordered pair is a solution of the system of linear equations.

7) $(4, -6)$, $\begin{cases} x + y = -2 \\ x - y = 10 \end{cases}$ 7) _____

A) Yes B) No

8) $(-3, 2)$, $\begin{cases} 3x + y = -11 \\ 4x + 3y = -18 \end{cases}$ 8) _____

A) Yes B) No

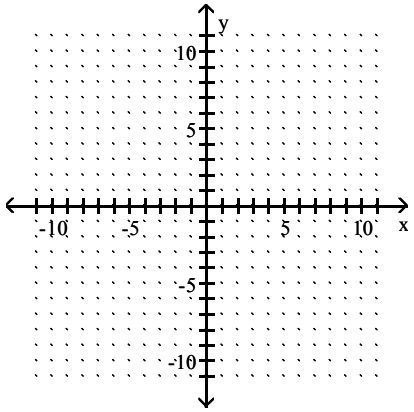
9) (1, 3), $\begin{cases} 3x + y = 6 \\ 2x + 3y = 11 \end{cases}$ 9) _____

A) Yes B) No

Solve the system by graphing.

10) 10) _____

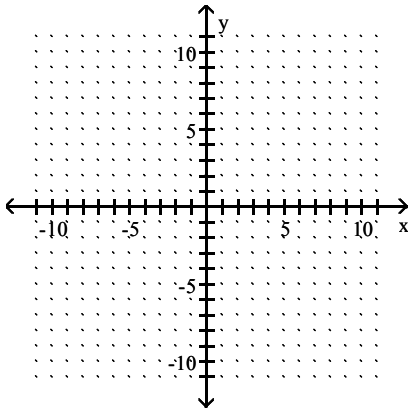
$\begin{cases} x - y = -1 \\ x + 2y = -13 \end{cases}$



A) (–4, 5) B) (–4, –5) C) (–5, –4) D) (–5, 4)

11) 11) _____

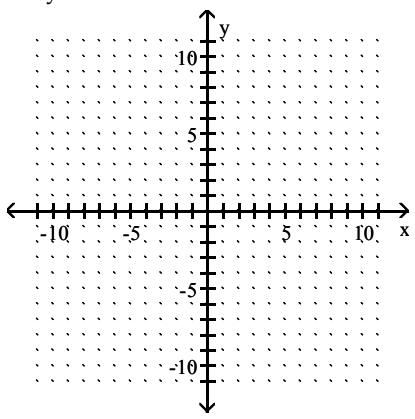
$\begin{cases} 4y + 4 = 0 \\ x - 3y = -1 \end{cases}$



A) (–4, 1) B) (–1, –4) C) (–4, –1) D) (–1, 4)

12) 12) _____

$$\begin{cases} -x + 2y = 4 \\ 2x - 4y = 4 \end{cases}$$



A) (0, –1) B) (0, 2) C) (2, –1) D) ∅

Solve the system of equations.

13) 13) _____

$$\begin{cases} x + y = -2 \\ y = -3x \end{cases}$$

A) (1, 3) B) (–1, 3) C) (1, –3) D) (–1, –3)

14) 14) _____

$$\begin{cases} x + 7y = -35 \\ 5x + 8y = -40 \end{cases}$$

A) (0, –5) B) (5, 0) C) (1, –6) D) ∅

15) 15) _____

$$\begin{cases} x + 3y = 15 \\ 8x + 4y = 20 \end{cases}$$

A) (–5, 0) B) (1, 4) C) (0, 5) D) ∅

16) 16) _____

$$\begin{cases} 4x + 8y = 24 \\ -\frac{2}{3}x + y = 10 \end{cases}$$

A) (–6, 7) B) (–7, 7) C) (–6, 6) D) ∅

17) 17) _____

$$\begin{cases} y = 5x + 6 \\ y = 9x + 5 \end{cases}$$

A) $(\frac{29}{4}, \frac{1}{4})$ B) $(\frac{1}{4}, \frac{29}{4})$

C) $\{(x, y) \mid y = 5x + 6\}$ D) ∅

18) $\begin{cases} \frac{x}{4} - \frac{y}{3} = 1 \\ \frac{x}{4} - y = 3 \end{cases}$ 18) _____

A) (0, 3) B) (0, –3) C) (3, 0) D) (–3, 0)

19) $\begin{cases} x - 2y = 3 \\ -6x - 3y = -63 \end{cases}$ 19) _____

A) (8, 4) B) (–9, 4) C) (9, 3) D) ∅

20) $\begin{cases} 5x + 4y = 26 \\ 2x + 4y = 44 \end{cases}$ 20) _____

A) (4, –14) B) (–6, 14) C) (5, –14) D) ∅

21) $\begin{cases} 3x + y = 4 \\ 2x + 3y = -2 \end{cases}$ 21) _____

A) (0, –2) B) (2, –2) C) (–2, 2) D) ∅

22) $\begin{cases} 7x - 6y = 2 \\ 4x - 7y = 6 \end{cases}$ 22) _____

A) $(-\frac{22}{25}, -\frac{34}{25})$ B) $(-\frac{34}{25}, -\frac{22}{25})$ C) $(\frac{34}{25}, \frac{22}{25})$ D) $(-\frac{22}{25}, \frac{34}{25})$

23) $\begin{cases} 2x + y = 3 \\ 4y = 12 - 8x \end{cases}$ 23) _____

A) (0, 3) B) $(\frac{3}{2}, 0)$

C) $\{(x, y) \mid 2x + y = 3\}$ D) ∅

24) $\begin{cases} \frac{3}{10}x + \frac{3}{5}y = \frac{12}{5} \\ 3x + 2y = 36 \end{cases}$ 24) _____

A) (–14, 3) B) (–14, 6) C) (14, –3) D) (–3, 14)

25) 25) _____

$$\begin{cases} \frac{x}{7} + \frac{y}{14} = 1 \\ \frac{x}{4} - \frac{y}{8} = 0 \end{cases}$$

A) $(7, \frac{7}{2})$ B) $(\frac{7}{2}, 7)$

C) $\{(x, y) \mid \frac{x}{7} + \frac{y}{14} = 1\}$ D) $\varnothing$

26) 26) _____

$$\begin{cases} 2.5x + 0.4y = -14.1 \\ 0.5x + 0.8y = -5.7 \end{cases}$$

A) (–5, –4) B) (–6.3, –4) C) (–7.5, –3.6) D) (–2.5, –3.6)

Solve.

27) One number is 1 less than a second number. Twice the second number is 4 less than 3 times the first. Find the two numbers. 27) _____

A) 7 and 8 B) –7 and –6 C) 5 and 6 D) 6 and 7

28) One number is 3 less than a second number. Twice the second number is 48 more than 5 times the first. Find the two numbers. 28) _____

A) –15 and –12 B) –13 and –10 C) 11 and 14 D) –14 and –11

29) A vendor sells hot dogs and bags of potato chips. A customer buys 2 hot dogs and 5 bags of potato chips for $8.00. Another customer buys 3 hot dogs and 3 bags of potato chips for $7.50. Find the cost of each item. 29) _____

A) $1.00 for a hot dog; $1.50 for a bag of potato chips

B) $1.50 for a hot dog; $1.00 for a bag of potato chips

C) $1.75 for a hot dog; $1.25 for a bag of potato chips

D) $1.50 for a hot dog; $1.25 for a bag of potato chips

30) A chemist needs 130 milliliters of a 31% solution but has only 17% and 43% solutions available. Find how many milliliters of each that should be mixed to get the desired solution. 30) _____

A) 65 ml of 17%; 65 ml of 43% B) 60 ml of 17%; 70 ml of 43%

C) 70 ml of 17%; 60 ml of 43% D) 65 ml of 17%; 70 ml of 43%

31) The manager of a bulk foods establishment sells a trail mix for $7 per pound and premium cashews for $15 per pound. The manager wishes to make a 480–pound trail mix–cashew mixture that will sell for $8 per pound. How many pounds of each should be used? 31) _____

A) 270 pounds of trail mix
210 pounds of cashews

B) 60 pounds of trail mix
420 pounds of cashews

C) 420 pounds of trail mix
60 pounds of cashews

D) 240 pounds of trail mix
240 pounds of cashews

32) University Theater sold 493 tickets for a play. Tickets cost $23 per adult and $14 per senior citizen. If total receipts were $8270, how many senior citizen tickets were sold? 32) _____

A) 341 senior citizen tickets

B) 251 senior citizen tickets

C) 242 senior citizen tickets

D) 152 senior citizen tickets

Given the cost function, C(x), and the revenue function, R(x), find the number of units x that must be sold to break even

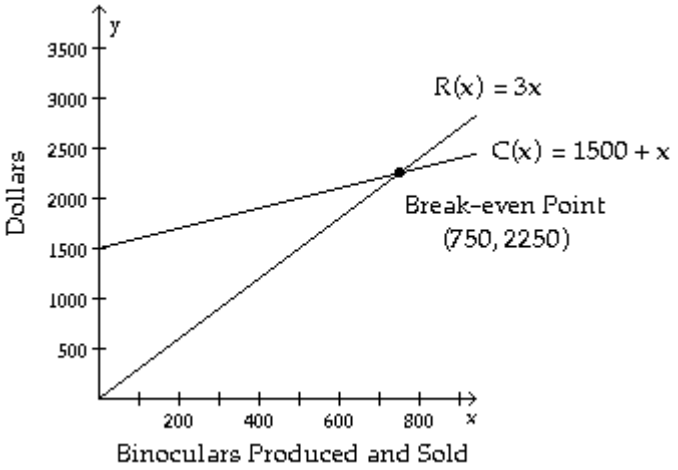
33) $C(x) = 2000x + 33{,}000$
$R(x) = 5000x$ 33) _____

A) 12 units B) 5 units C) 11 units D) 13 units

34) $C(x) = 1.7x + 1120$
$R(x) = 2.5x$ 34) _____

A) 1400 units B) 1420 units C) 340 units D) 1410 units

The figure shows the graphs of the cost and revenue functions for a company that manufactures and sells binoculars. Use the information in the figure to answer the question.



35) How many binoculars must be produced and sold for the company to break even? 35) _____

A) 750 binoculars B) 1500 binoculars C) 2250 binoculars D) 2700 binoculars

36) At the break–even point both cost and revenue are what? 36) _____

A) $2250 B) $1500 C) $750 D) $2700

37) What is the profit when 815 binoculars are produced? 37) _____

A) $4760 B) $1760 C) $3130 D) $130

Solve the system of linear equations using matrices.

38) 38) _____

$$\begin{cases} x + y = -3 \\ x - y = -5 \end{cases}$$

A) (–4, –1) B) (–4, 1) C) (1, –4) D) ∅

39) 39) _____

$$\begin{cases} 3x + y = 0 \\ 2x + y = -1 \end{cases}$$

A) (–3, 1) B) (–1, 3) C) (1, –3) D) ∅

40) 40) _____

$$\begin{cases} 6x + y = 15 \\ 2x + 2y = 0 \end{cases}$$

A) (–3, –3) B) (–3, 3) C) (3, –3) D) ∅

41) 41) _____

$$\begin{cases} 6x + 2y = -22 \\ 4x + 6y = 4 \end{cases}$$

A) (–5, –4) B) (4, –5) C) (–5, 4) D) ∅

42) 42) _____

$$\begin{cases} 3x + y = 10 \\ 6x + 2y = 20 \end{cases}$$

A) (5, –5) B) (0, 10)

C) $\{(x, y) \mid 3x + y = 10\}$ D) ∅

43) 43) _____

$$\begin{cases} 8x - 9y = 7 \\ -16x + 18y = -3 \end{cases}$$

A) (–2, –2) B) (7, –3)

C) $\{(x,y) \mid 8x - 9y = 7\}$ D) ∅

44) 44) _____

$$\begin{cases} x + 3y + 3z = 0 \\ 2y + 4z = 0 \\ 2z = -2 \end{cases}$$

A) (–3, –1, 2) B) (–3, 2, –1)

C) $\{(x, y, z) \mid x + 3y + 3z = 0\}$ D) ∅

45) 45) _____

$$\begin{cases} 8x - y - 6z = 8 \\ 4x + 9z = 30 \\ 6y + z = 26 \end{cases}$$

A) (3, 2, 4) B) (–3, 4, 6) C) (3, 4, 2) D) ∅

46) 46) _____

$$\begin{cases} 5x - y - 3z = -8 \\ 2x + 7y - 9z = 33 \\ -4x - 5y + z = -37 \end{cases}$$

A) (1, 7, 2) B) (–1, 7, 2) C) (1, 2, 7) D) ∅

Solve the system.

47) 47) _____

$$\begin{cases} x + y + z = -7 \\ x - y + 2z = 3 \\ 5x + y + z = -27 \end{cases}$$

A) (2, –5, –4) B) (2, –4, –5) C) (–5, –4, 2) D) ∅

48) 48) _____

$$\begin{cases} x - y + 5z = 22 \\ 2x + z = 5 \\ x + 4y + z = 17 \end{cases}$$

A) (5, 3, 0) B) (0, 3, 5) C) (5, 0, 3) D) ∅

49) 49) _____

$$\begin{cases} x - y + z = 0 \\ x + y + z = -6 \\ x + y - z = 2 \end{cases}$$

A) (1, –4, –3) B) (1, –3, –4) C) (–4, 1, –3) D) ∅

50) 50) _____

$$\begin{cases} x + y + z = -3 \\ x - y + 2z = 1 \\ 2x + 2y + 2z = -7 \end{cases}$$

A) (–4, –1, 2) B) (2, –4, –1) C) (2, –1, –4) D) ∅

Answer Key
Testname: PRACTICE FOR THE EXAM (4.1, 4.2, 4.3, 4.4)

1) A
2) B
3) C
4) B
5) A
6) A
7) A
8) B
9) A
10) C
11) C
12) D
13) C
14) A
15) C
16) C
17) B
18) B
19) C
20) B
21) B
22) A
23) C
24) C
25) B
26) A
27) D
28) D
29) B
30) B
31) C
32) A
33) C
34) A
35) A
36) A
37) D
38) B
39) C
40) C
41) C
42) C
43) D
44) B
45) C
46) A
47) C
48) B
49) B
50) D