MAT0024 Test 1 D. Howard (3-16)

Show all work for credit.

- 1. Simplify. $\frac{24}{42} = \frac{16 \cdot 4}{16 \cdot 7} = \frac{4}{7}$
- 2. Simplify. $\frac{12}{6} \cdot \frac{-3}{4} = \frac{\cancel{4} \cdot \cancel{3} \cdot -3}{\cancel{3} \cdot \cancel{3} \cdot \cancel{4}} = \begin{pmatrix} -3\\ -3\\ \hline \end{matrix}$

Name

3. Simplify. $\frac{5}{3} \div \frac{25}{9} = \frac{5}{3} \cdot \frac{9}{35} = \frac{5}{3} \cdot \frac{8}{35} = \frac{5}{3} \cdot \frac{8}{5} \cdot \frac{3}{5} = \frac{3}{5}$

Key

- 4. Simplify. $\frac{1}{4} \frac{3}{10} = \frac{1}{4} \cdot \frac{5}{5} \frac{3}{10 \cdot 2} = \frac{5}{20} = \begin{pmatrix} -1 \\ -1 \\ 20 \end{pmatrix}$
- 5. Simplify. $\left(-\frac{2}{3}\right)^3 = \left(-\frac{2}{3}\right)\left(-\frac{2}{3}\right)\left(-\frac{2}{3}\right) = \left(-\frac{8}{27}\right)^3$
- 6. Simplify. $\frac{5}{8} + \frac{1}{4} = \frac{5}{8} + \frac{1 \cdot 2}{4 \cdot 2} = \frac{5 + 2}{8} = \frac{7}{8}$ Lcm = 8

7. Simplify
$$2^{3} - 9 \cdot 3 - (16 + 5 \cdot 2) =$$

PEMDAS $2^{3} - 9 \cdot 3 - (16 + 10) =$
 $2^{3} - 9 \cdot 3 - 26 =$
 $8 - 9 \cdot 3 - 26 =$
 $8 - 27 - 26 =$
 $8 - 27 - 26 =$
 $8 - 53 =$
 -45

8. Simplify
$$|-1| - 3 + |12| =$$

PEMDAS $| -3 + |2 =$
 $-3 + |3 = (10)$

9. Write the fraction $\frac{4}{5}$ as a **decimal** and as a **percent**. 5 $\boxed{\begin{array}{c} .8 \\ -40 \\ -\frac{40}{5} \end{array}}$ $\boxed{\begin{array}{c} .8 \\ -8 \end{array}} = \frac{80}{700}$ $\boxed{\begin{array}{c} 80\% \\ -90 \end{array}}$

10. Solve 10y - 1.23 = -0.02 (Write your answer as a decimal.) + 1.23 + 1.23 /.23

104		1.21
10		10
Y	= 0.	121)
10 (Y	= 0.	10

- .02 1.21 1.21 1011.210 -10 -10 -21 -20 -10 -10 0

11. Solve $\frac{2}{3}x - 4 = \frac{1}{2}$ (Write your answer as a fraction.) Lcm = 6

$$6\left(\frac{2}{3}x\right) - 6\left(4\right) = 6\left(\frac{1}{2}x\right) - 6\left(4\right) = 6\left(\frac{1}{2}x\right) - 6\left(4\right) = 3 - 6\left(\frac{1}{2}x\right) - 6\left(\frac{1}{2}x\right)$$

 $x = \frac{27}{4} = 6'/4$

12. Solve 2(3z-4) + 1 = 3(z+1) (Write your answer as a fraction.)

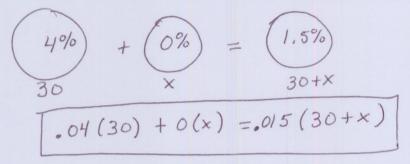
$$\begin{array}{r} 6z - 8 + 1 &= 3z + 3 \\ 6z - 7/ &= 3z + 3 \\ -3z + 7 &- 3z + 7 \\ \hline 3z &= 10 \\ \hline 3 &= 3 \\ \hline 2 &= 10 \\ \hline 3 &= 3 \\ \hline 3 \\ \hline 2 &= 3 \\ \hline 3 \end{array}$$

13. During the 2003-2004 academic year, tuition and fees at public colleges and universities were \$4694, on average, and increased by 5% during the next year. Find the average cost of tuition and fees during the 2004-2005 academic year. 34694 Round to two decimal places.

$$4694 (.05) = increase = 234.70
tuition = 4694 + 234.70 = 134928.70
\frac{134928.70}{234.70} = 234.70
\frac{1694.00}{234.70}
\frac{1694.00}{4928.70}$$

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14. A 30-ounce solution contains 4% salt. How much pure water (0% salt) should be added to dilute the solution to 1.5% concentration? Write an equation where x represents how much pure water is added. You need not solve.



15. The sum of three consecutive integers is -123. Write an equation where x represents the first integer. You need not solve.

$$\begin{array}{c} X + X + 1 + X + 2 = -123 \\ \\ 15t \pm 2nd \pm 3rd \pm \end{array}$$