

Practice Assignment

Date: _____

Block: _____

Review:

1. Convert 8 miles to feet.

$$8 \text{ miles} \times \frac{5,280 \text{ ft}}{1 \text{ mile}} = \boxed{42240 \text{ ft}}$$

2. Simplify the expression: $5(x-3) - 2(x+4) - 9$

$$\begin{aligned} & \boxed{5x} - 15 - \boxed{2x} - 8 - 9 \\ & \boxed{3x - 32} \end{aligned}$$

Use the scenario below to answer questions 3-8.

The athletic department will raise money by charging admission to an upcoming football game. The price will be different for students and adults. Student tickets cost \$3 each and adult tickets cost \$5 each. The goal is to raise \$5000 from the sale of tickets to the game.

3. Define variables that represent the unknown quantities in the problem. Then write an equation that can be used to find the number of student and adult tickets if the goal is reached.

x : # of student tickets

y : # of adult tickets

$$3x + 5y = 5000$$

4. Using the equation, calculate the x and y intercepts of the equations. Show all your work.

x -int:

$$3x + 5(0) = 5000$$

$$3x = 5000$$

$$x = 1666.7$$

$\boxed{1667 \text{ student tickets}}$

y -int:

$$3(0) + 5y = 5000$$

$$5y = 5000$$

$$y = 1000$$

$\boxed{1000 \text{ adult tickets}}$

5. What do the intercepts mean in terms of the problem situation? Use complete sentences in your answer.

x -intercept is the number of student tickets sold if no adult tickets are sold

y -intercept is the number of adult tickets sold if no student tickets are sold.

7. Assuming the athletic department met its goal of \$5000, find the number of adult tickets sold if 400 student tickets sold.

$$\begin{aligned} x & \\ 3(400) + 5y &= 5000 \\ 1200 + 5y &= 5000 \end{aligned}$$

$$5y = 3800$$

$\boxed{y = 760 \text{ adult tickets}}$

6. Assuming the athletic department met its goal of \$5000, find the number of student tickets sold if 600 adult tickets sold.

$$3x + 5(600) = 5000$$

$$3x + 3000 = 5000$$

$$3x = 2000$$

$\boxed{x = 667 \text{ student tickets}}$

8. Write the equation from Question 3 in slope intercept form.

$$\begin{aligned} 3x + 5y &= 5000 \\ -3x & \quad -3x \\ \hline 5y &= -3x + 5000 \\ \frac{5y}{5} &= \frac{-3x}{5} + \frac{5000}{5} \end{aligned}$$

$\boxed{y = -\frac{3}{5}x + 1000}$

Problems 9-11: Write an equation in standard form to model each situation. Then answer the question.

9. You have \$25 in a book store gift card. You want to buy magazines that cost \$3 each and books that cost \$5 each. How many books can you buy if you buy 3 magazines?

Equation: $3x + 5y = 25$

x: # of magazines

y: # of books

Solution: 3 books

$3x + 5y = 25$

$3(3) + 5y = 25$

$9 + 5y = 25$
 -9

$y = 3.2$

$\frac{5y}{5} = \frac{16}{5}$

10. Gail plans to spend \$20 on rides at an amusement park. The Ferris wheel costs \$2 and roller coasters cost \$3. How many Ferris wheel rides can Gail ride if she rides roller coasters 4 times?

Equation: $2x + 3y = 20$

x: # of Ferris Wheel Rides

y: # of Roller Coaster Rides

Solution: 4 Ferris Wheel Rides

4 y

$2x + 3y = 20$

$2x + 3(4) = 20$

$2x + 12 = 20$

$2x = 8$

$x = 4$

11. A 100-point test has x questions worth 2 points apiece and y questions worth 4 points apiece. If you have 24 questions worth 4 points apiece, how many questions will be worth 2 points apiece?

Equation: $2x + 4y = 100$

x: # of 2 point questions

y: # of 4 point questions

Solution: 2 two point questions

$2x + 4y = 100$

$2x + 4(24) = 100$

$2x + 96 = 100$

$2x = 4$

$x = 2$

24 y

12. Calculate the x and y intercepts of the equation $2x - 6y = 12$. Then convert the equation into slope intercept form.

x-int
 $y = 0$

$2x - 6(0) = 12$

$2x = 12$

$x = 6$

$(6, 0)$

y-int
 $x = 0$

$2(0) - 6y = 12$

$-6y = 12$

$y = -2$

$(0, -2)$

$2x - 6y = 12$

$\frac{-6y}{-6} = \frac{-2x + 12}{-6}$

$y = \frac{1}{3}x - 2$