

# Semester Review

# Algebra S1

## Part 1. Solving Equations

Solve for x.

1.  $-7 - 4x = x + 19$

2.  $-2 = \sqrt{x+1} - 7$

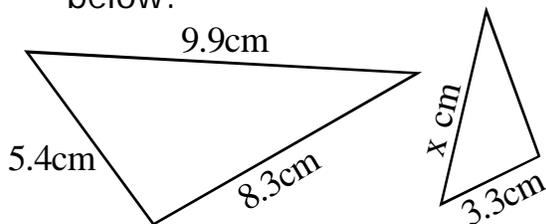
3.  $-6 = \frac{2x - 8}{5}$

4.  $-2|x - 5| \geq -16$  (graph your answer)

## Part 2. Proportional Reasoning

Solve:

1. Find the missing length x in the similar triangles below:



2. What percent is 9 of 25?

3. What number increased by 15% is 92?

## Part 3. Linear Equations

Solve:

1. State the slope between:  $(-1, -9)(4, -2)$
2. State the x and y intercepts:  $2x - 5y = 20$
3. Write an equation for a line perpendicular to  $y = 2x - 3$

Which passes through the point  $(-6, 1)$  in Standard Form.

# Semester Review

# Algebra S1

## Part 4. Exponents

Simplify

1.  $3x^3y(5x^{-2}y)$

2.  $(2a^{-4}b)^3$

3.  $\frac{(2x^{-5})^{-3}}{x^5}$

4.  $\left(\frac{a^2b^{-3}}{a^5b^{-7}}\right)^2$

## Part 5. Systems of Equations

Solve Each Using Substitution or Elimination:

1. Solve for x and y:  $y = 2x - 5$

$$2x + 3y = -7$$

2. Solve for x and y:  $3x - 2y = 16$

$$2x + 3y = 2$$

3. Jamie has a cup full of quarters and dimes. She has a total of 17 coins, for a total of \$3.05. How many of each coin does she have?

4. Eddie is mixing two types of candy. Runts cost \$5 a pound, and caramels cost \$4 a pound. If he mixes 8 pounds worth \$4.25 a pound, how much of each candy did he use?

## Practice Semester Exam 1

## Algebra S1

**Solve for x:**

1.  $a(x-b) = c$

1. \_\_\_\_\_

2.  $\frac{4x+7}{-2} \leq 5$

2. \_\_\_\_\_

3.  $|x+5| = 3$

3. \_\_\_\_\_ or \_\_\_\_\_

4.  $3|2x-5| - 9 = 3$

4. \_\_\_\_\_ or \_\_\_\_\_

**Solve:**

5. What number decreased by 30% is 28?

5. \_\_\_\_\_

6. The price of a stereo was \$229.99, and you paid \$250.69 at the register. What percent was the sales tax?

6. \_\_\_\_\_

**What are the x and y-intercepts for the line described below?**7. Slope:  $-\frac{3}{4}$  Through the point:  $(-2, 5)$ 

7. x-int. \_\_\_\_\_ y-int. \_\_\_\_\_

**Write an equation in slope-intercept form for a line passing through:**8.  $(-3, -1)$  and  $(6, -4)$ 

8. \_\_\_\_\_

## Practice Semester Exam 1

## Algebra S

Find the point where the lines below intersect:

$$9. \quad \begin{aligned} y &= 3x - 5 \\ 3x + y &= 2 \end{aligned}$$

9. \_\_\_\_\_

Solve each system of equations below:

$$10. \quad \begin{aligned} 2x - 3y &= 16 \\ 4x + y &= 18 \end{aligned}$$

10. \_\_\_\_\_

$$11. \quad \begin{aligned} x &= 3y + 20 \\ x - y &= 6 \end{aligned}$$

11. \_\_\_\_\_

Solve:

12. A Ligon student is raising money for a fund raiser. She sells Blow Pops for \$0.25 each and candy bars for \$0.75 each. She has sold 21 items for a total of \$14.25. How many of each has she sold?

$$12. \quad \mathbf{B}(\text{Blow Pops}) = \underline{\hspace{2cm}} \quad \mathbf{C}(\text{Candy bars}) = \underline{\hspace{2cm}}$$

Simplify:

$$13. \quad 3x^2y(-2x^{-5}y^{-3})^2$$

13. \_\_\_\_\_

$$14. \quad \frac{3xy(x^7y^{-1})}{5x^2y^{-3}}$$

14. \_\_\_\_\_

$$15. \quad \left( \frac{2a^4}{a^{-2}} \right)^3$$

15. \_\_\_\_\_

Pledge: Write-out and sign.

## Practice Semester Exam 2

## Algebra S2

Solve for x:

1.  $\frac{a(x-c)}{d} = b$

1. \_\_\_\_\_

2.  $\frac{-2(x-7)}{3} = \frac{5}{6}$

2. \_\_\_\_\_

3.  $2\sqrt{x-5} + 7 = 12$

3. \_\_\_\_\_

4.  $-3|3x-5| = -18$

4. \_\_\_\_\_ or \_\_\_\_\_

Solve:

5. What number increased by 30% is 52?

5. \_\_\_\_\_

6. A stereo is on sale for 10% off, and now costs just \$143.10. What was the original price of the stereo before the sale?

6. \_\_\_\_\_

What is the slope of the line below?

7.  $3x - 2y = 7$

7. m = \_\_\_\_\_

Find the x and y-intercepts for a line passing through the points below:

8.  $(-3, -1)(6, -4)$

8. x-int. \_\_\_\_\_ y-int. \_\_\_\_\_

## Practice Semester Exam 2

## Algebra S2

Write an equation for a line perpendicular to the line below and passing through the point given in Standard Form:

9. Perpendicular to  $2x - 3y = -5$  through  $(-4, 2)$

9. Standard Form \_\_\_\_\_

Solve each system of equations below:

10.  $2x - 3y = 5$   
 $4x + y = -11$

10. \_\_\_\_\_

11.  $x = 3y + 8$   
 $x - y = 6$

11. \_\_\_\_\_

Solve:

12. Juan buys six Blow Pops and three candy bars for \$4.05. The next day, he buys seven Blow Pops and two candy bars for \$3.75. How much will he pay for five Blow Pops and four candy bars?

12. 5 Blow Pops and 4 candy bars = \_\_\_\_\_

Simplify:

13.  $(-2xy^3)^3$

13. \_\_\_\_\_

14.  $\frac{3x^{-2}y(x^7y)^2}{12x^2y}$

14. \_\_\_\_\_

15.  $\left(\frac{2x^3y}{x^5}\right)^{-3}$

15. \_\_\_\_\_

## Practice Semester Exam 3

## Algebra S3

Solve for x:

1.  $a(b + dx) = c$

1. \_\_\_\_\_

2.  $\frac{3x}{5} = \frac{2x-3}{7}$

2. \_\_\_\_\_

3.  $\frac{\sqrt{x-3}}{2} = 5$

3. \_\_\_\_\_

4.  $-2|x-1| + 7 = -1$

4. \_\_\_\_\_ or \_\_\_\_\_

Solve:

5. 14% more than what number is 9.12?

5. \_\_\_\_\_

6. Amanda has 25% more money than Claire. If Amanda has \$123, how much money does Claire have?

6. \_\_\_\_\_

What is the slope of a line parallel to the line of the equation below?

7.  $x = 2y + 3$

7. m = \_\_\_\_\_

The graph of the line passing through the two points below is shifted UP three units. What is the y-intercept of the resulting graph?

8.  $(4, -2)(-3, 12)$

8. y-int. \_\_\_\_\_

## Practice Semester Exam 3

## Algebra S3

Write an equation for a line perpendicular to the line below and passing through the point given in Slope-Intercept Form:

9. Perpendicular to  $6x + 5y = 18$  through  $(12, 11)$

9. Slope-Intercept Form \_\_\_\_\_

Solve each system of equations below:

10.  $y = x - 8$   
 $3x - 2y = 1$

10. \_\_\_\_\_

11.  $2x - 5y = -3$   
 $2x + 5y = 10$

11. \_\_\_\_\_

Solve:

12. A test consists of true/false questions and fill-in-the-blank questions. There are 24 questions on the test. If the true/false questions are worth three points each and the fill-in-the-blank questions are worth seven points each for a total of 100 points, how many of the questions are fill-in-the blank questions?

12. fill-in-the-blank questions = \_\_\_\_\_

Simplify:

13.  $-3y(2y^{-2})^4$

13. \_\_\_\_\_

14.  $\frac{xy^{-2}(x^3y^2)^3}{x^{-3}y}$

14. \_\_\_\_\_

15.  $\left(\frac{5x^{-4}}{10x^{-7}}\right)^3$

15. \_\_\_\_\_

# Review: Four Formulas

## Algebra Re

Find the slope between each pair of points:

1.  $(-4, -3)$   $(5, -7)$

2.  $(9, -1)$   $(-2, 0)$

3.  $(6, -7)$   $(-3, -7)$

4.  $(-8, 4)$   $(-8, -10)$

Write an equation for each pair of points below in Point-Slope Form, then convert it into both Standard and Slope-Intercept Forms:

5.  $(1, -1)$   $(6, -11)$

6.  $(5, -3)$   $(-2, 4)$

Point-Slope: \_\_\_\_\_

Point-Slope: \_\_\_\_\_

Standard: \_\_\_\_\_

Standard: \_\_\_\_\_

Slope-Intercept: \_\_\_\_\_

Slope-Intercept: \_\_\_\_\_

Write an equation parallel to the given equation and through the point given:

Write an equation perpendicular to the given equation and through the point given:

7.  $2x - 3y = 8$   $(-3, -7)$

8.  $y = 5x - 7$   $(-5, 7)$

Point-Slope: \_\_\_\_\_

Point-Slope: \_\_\_\_\_

Standard: \_\_\_\_\_

Standard: \_\_\_\_\_

Slope-Intercept: \_\_\_\_\_

Slope-Intercept: \_\_\_\_\_

# Review: Four Formulas

## Algebra Re

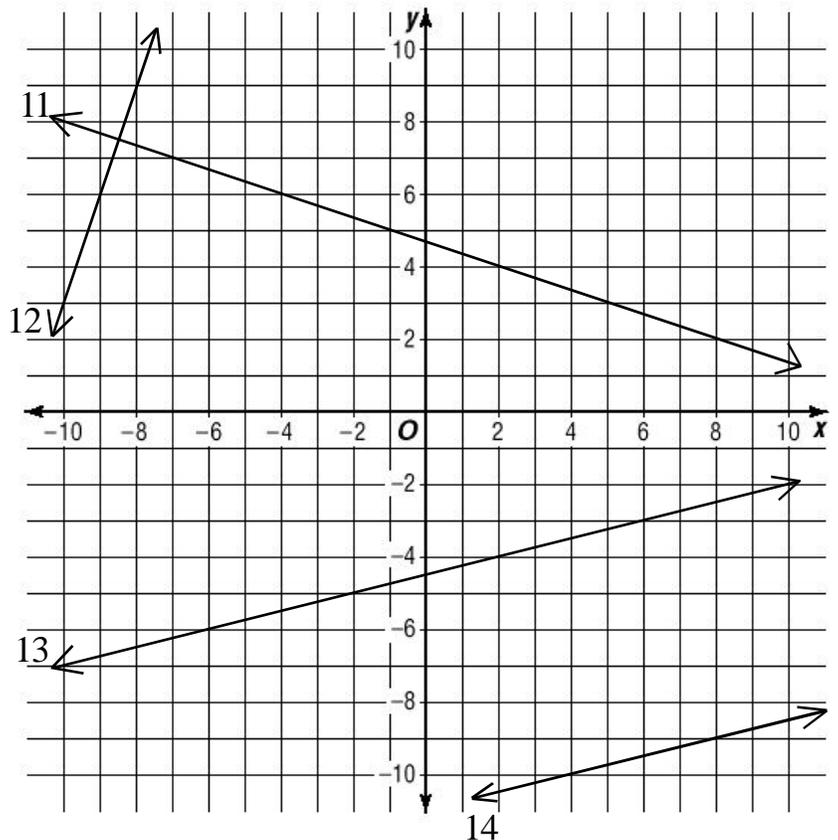
Write an equation for each in the form listed:

9. Standard

10. Slope-Intercept

11. Standard

12. Point-Slope



Name both Intercepts for each equation:

13.  $2x - 5y = 40$

x-int.: \_\_\_\_\_

y-int. \_\_\_\_\_

14.  $7x - 3y = 10$

x-int.: \_\_\_\_\_

y-int. \_\_\_\_\_

\

15.  $x + 15 = 5y$

x-int.: \_\_\_\_\_

y-int. \_\_\_\_\_

16.  $y = 2x - 5$

x-int.: \_\_\_\_\_

y-int. \_\_\_\_\_

## Practice Semester Exam 4

## Algebra S4

**Solve:**

1. A pair of sunglasses costs \$29.95 but is on sale for 15% off. After a 7.5% sales tax, how much will the sunglasses cost? (to the cent)

1. \_\_\_\_\_

2. Ryan can run a quarter mile 15% *faster* than his sister Ally. If Ryan can run a quarter mile in 68 seconds, how many seconds does it take Ally?

2. \_\_\_\_\_

3. Write an equation in Standard Form for a line with a slope of  $-\frac{7}{9}$  and a y-intercept of -5:

3. \_\_\_\_\_

**The line which passes through the two points below is shifted to the right 5 units. What is the new x-intercept of the graph?**

4.  $(4, -6)(-3, -20)$

4. x-int. \_\_\_\_\_

**Solve for x:**

5.  $a(b - x) = c$

5. \_\_\_\_\_

6.  $\frac{2}{3} = \frac{5x - 1}{4}$

6. \_\_\_\_\_

7.  $\sqrt{-4x + 5} = 2$

7. \_\_\_\_\_

**Solve for x and graph your solution on the line provided:**

8.  $-2x + 7 \leq -1$

8. \_\_\_\_\_

## Practice Semester Exam 4

## Algebra S4

Write an equation for a line parallel to the line below and passing through the point given in Slope-Intercept Form:

9. Parallel to  $x = 5y - 1$  through  $(-2, -10)$

9. Slope-Intercept Form \_\_\_\_\_

**Simplify:**

10.  $5xy(-2y^2x)^3$

10. \_\_\_\_\_

11.  $\frac{a^{-2}b(5a^3)^2}{10b^{-3}}$

11. \_\_\_\_\_

12.  $\left(\frac{20x^{-2}y}{8x^7}\right)^2$

12. \_\_\_\_\_

**Solve:**

13. Marianna makes \$6.50 an hour as a lifeguard and \$7.50 an hour as a cashier during the summer. In one week she works for 19 hours and makes \$132.50. How many hours did she work as a cashier?

13. hours as a cashier = \_\_\_\_\_

**Solve each system of equations below:**

14.  $x = -5y + 11$   
 $2x + 11y = 20$

14. \_\_\_\_\_

15.  $2x - 3y = 14$   
 $6x + y = 12$

15. \_\_\_\_\_

**Bonus: Circle the equation that does NOT represent a function:**

a.  $y - x = -3$       b.  $y = -3x$       c.  $x = y^2 + 3$       d.  $y = -3x^2$