

December 10, 2018 Monday

Write the slope-intercept form of the equation of each line given the slope and y-intercept.

1) Slope =  $\frac{3}{2}$ , y-intercept = -1  
 $y = \frac{3}{2}x - 1$

2) Slope =  $-\frac{3}{5}$ , y-intercept = 0  
 $y = -\frac{3}{5}x + 0$

Write the slope-intercept form of the equation of each line.

3)  $3x + 2y = 10$   $m = -\frac{3}{2}$   
 $y = mx + b$   
 $y = -\frac{3}{2}x - 5$

4)  $13x + 2y = 12$

Recall the slope-intercept form of a line is:  
 $y = mx + b$   
 $m = \text{Slope}$   
 $b = \text{y-intercept}$

5)  $3x + 2y = 10$   
 $-3x + 2y = 10$   
 $2y = -3x + 10$   
 $y = -\frac{3}{2}x + \frac{10}{2}$   
 $y = -\frac{3}{2}x + 5$

6)  $13x + 2y = 12$   
 $-13x + 2y = 12$   
 $2y = 13x + 12$   
 $y = \frac{13}{2}x + \frac{12}{2}$   
 $y = \frac{13}{2}x + 6$

Dec 7-11:30 AM

Write the slope-intercept form of the equation of each line given the slope and y-intercept.

1) Slope =  $\frac{3}{2}$ , y-intercept = -1  $y = \frac{3}{2}x - 1$

2) Slope =  $-\frac{3}{5}$ , y-intercept = 0  $y = -\frac{3}{5}x$

Write the slope-intercept form of the equation of each line.

3)  $3x + 2y = 10$   $y = -\frac{3}{2}x + 5$

4)  $13x + 2y = 12$   $y = -\frac{13}{2}x + 6$

5)  $y = -2x - 5$

6)  $y = 1$

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Geometry Name: \_\_\_\_\_ ID: 1

Recalling graphs of Linear Equations

Sketch the graph of each line.

1)  $y = 2x + 3$   $b = 3, m = \frac{1}{2}$

2)  $y = -\frac{3}{2}x + 1$   $b = 1, m = -\frac{3}{2}$

3)  $x + 2y = 2$   $y = -\frac{1}{2}x + 1$   $b = 1, m = -\frac{1}{2}$

4)  $x - 4y = -4$   $-x - 4y = -4$   $-4y = -x - 4$   $y = \frac{1}{4}x + 1$   $b = 1, m = \frac{1}{4}$

5)  $y = 2x - 1$   $-y = -2x + 1$   $y = 2x - 1$   $b = -1, m = 2$

6)  $0 = -y - 4$   $-y = -4$   $y = 4$

Geometry Name: \_\_\_\_\_ ID: 1

Recalling graphs of Linear Equations

Sketch the graph of each line.

1)  $y = \frac{1}{2}x + 3$

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

3)  $x + 2y = 2$

4)  $x - 4y = -4$

5)  $y = 2x - 1$

6)  $0 = -y - 4$

December 11, 2018 Tuesday

Find the slope of the following.

1)  $(1, 13), (-19, 8)$   
 $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{8 - 13}{-19 - 1} = \frac{-5}{-20} = \frac{1}{4}$

2)  $y = 5$   $m = 0$

3)  $x = 3$   $m = \frac{1}{0} = \text{undefined}$

4)  $y = 4x - 4$   $m = 4$

5)  $y = 2x + 1$   $m = 2$

6)  $0 = -y - 4$   $y = -4$   $m = 0$

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parallel lines have the same slope

9)  $y = 5x$   $m = 5$  10)  $y = x - 2$   $m = 1$

perpendicular lines have the negative reciprocal slope

11)  $y = \frac{1}{2}x$   $m = \frac{1}{2} \rightarrow m = \frac{2}{1} = 2$  12)  $y = \frac{2}{3}x + 1$   $m = \frac{2}{3}$

13)  $y = -\frac{4}{3}x + 3$   $m = -\frac{4}{3} \rightarrow m = \frac{3}{4} = \frac{3}{4}$

Dec 11-12:20 PM

Parallel and Perpendicular Lines

Complete the table. Show all work.

Equation	Slope (m)	Parallel Slope (l)	Perpendicular Slope (l)
1) $y = 8x + 9$	8	8	$-\frac{1}{8}$
2) $y = \frac{1}{6}x - 4$	$-\frac{1}{6}$	$-\frac{1}{6}$	$\frac{6}{1}$
3) $y = -4x + 13$	-4	-4	$\frac{1}{4}$
4) $y = \frac{7}{9}x - 4$	$\frac{7}{9}$	$\frac{7}{9}$	$-\frac{9}{7}$
5) $-3x + 6y = 9$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{2}{1} = -2$
6) $6x + 2y = 4$	$-\frac{3}{1}$	$-\frac{3}{1}$	$\frac{1}{3}$
7) $\frac{1}{2}x + \frac{3}{4}y = 2$	$-\frac{4}{3}$	$-\frac{4}{3}$	$-\frac{3}{4}$

Write the equation of a line parallel to the given line that goes through the given point.

8.  $y = 8x + 3$   $m = 8$  Containing (2, 4)  
 $y = mx + b$   
 $4 = 8(2) + b$   
 $4 = 16 + b$   
 $-16 -16$   
 $-12 = b$   
 $y = mx + b$   
 $y = 8x - 12$

9.  $2x + y = 3$  Containing (3, 9)  
 $y = mx + b$   
 $9 = -2(3) + b$   
 $9 = -6 + b$   
 $+6 +6$   
 $15 = b$   
 $y = mx + b$   
 $y = -2x + 15$

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Write the equation of a line that is perpendicular to the given line that goes through the given point.

10.  $y = \frac{1}{2}x - 4$   $m_{\perp} = 2$  Containing (5, -4)  
 $y = mx + b$   
 $-4 = (2)(5) + b$   
 $-4 = 10 + b$   
 $-10 -10$   
 $-14 = b$   
 $y = mx + b$   
 $y = 2x - 14$

11.  $y = 3x - 1$  Containing (9, 2)  
 $y = mx + b$   
 $2 = 3(9) + b$   
 $2 = 27 + b$   
 $-27 -27$   
 $-25 = b$   
 $y = mx + b$   
 $y = 3x - 25$

Determine if the lines are parallel, perpendicular, or neither. SHOW YOUR WORK.

12.  $y = 4x + 7$   $m = 4$   
 $4x + 7 = 18$   
 $4x = 11$   
 $x = \frac{11}{4}$   
 $y = 4(\frac{11}{4}) + 7 = 11 + 7 = 18$   
 $m = 4$   
 $y = 4x - 18$   $m = 4$   
**Parallel**

13.  $y = \frac{2}{3}x - 4$   
 $-3x - 2y = 4$   
 $-3x - 2(-4) = 4$   
 $-3x + 8 = 4$   
 $-3x = -4$   
 $x = \frac{4}{3}$   
 $y = \frac{2}{3}(\frac{4}{3}) - 4 = \frac{8}{9} - 4 = -\frac{32}{9}$   
 $m = \frac{2}{3}$   
 $m = -\frac{3}{2}$   
**Perpendicular**

14.  $3x - y = 9$   
 $y = -\frac{1}{3}x + 12$   
 $3x - (-\frac{1}{3}x + 12) = 9$   
 $3x + \frac{1}{3}x - 12 = 9$   
 $\frac{10}{3}x - 12 = 9$   
 $\frac{10}{3}x = 21$   
 $x = \frac{63}{10}$   
 $y = -\frac{1}{3}(\frac{63}{10}) + 12 = -\frac{21}{10} + 12 = \frac{119}{10}$   
 $m = 3$   
 $m = -\frac{1}{3}$   
**Perpendicular**

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December 12, 2019 Wednesday

What is the slope of a parallel line? What is the slope of a perpendicular line?

8.  $y = 8x + 3$   
 Containing (2, 4)

10.  $y = -\frac{1}{2}x - 4$   
 Containing (3, 9)

Choose 2 from 12-14.  
 Determine if the lines are parallel, perpendicular, or neither. SHOW YOUR WORK

12.  $y = 8x + 7$   
 $-4x + y = -18$

13.  $y = \frac{2}{3}x - 4$   
 $-3x - 2y = 4$

14.  $3x - y = 9$   
 $y = -\frac{1}{3}x + 12$

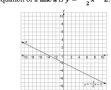
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Unit 9 Study Guide

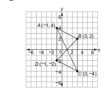
1. Which information is needed to show that a parallelogram is a rectangle?  
 A. The diagonals bisect each other.  
 B. The diagonals are congruent.  
 C. The diagonals are congruent and perpendicular.  
 D. The diagonals bisect each other and are perpendicular.

2. Using A-D from #1, which information is needed to prove a parallelogram?  
 A.  $(-\frac{11}{2}, -4)$   
 B.  $(-\frac{11}{2}, -3)$   
 C.  $(\frac{1}{2}, \frac{1}{2})$   
 D.  $(-\frac{1}{2}, -\frac{1}{2})$

3. Given the points P(2, -1) & Q(-9, -6), what are the coordinates of the point on the directed line segment PQ that partitions PQ into the ratio  $\frac{2}{3}$ ?

4. An equation of a line is  $y = -\frac{1}{2}x - 2$ . See graph.  
  
 What is the equation of the line that is perpendicular to a line shown on the graph and passes through point (-4, 0)?  
 A.  $y = -\frac{1}{2}x + 2$   
 B.  $y = -\frac{1}{2}x + 8$   
 C.  $y = 2x - 2$   
 D.  $y = 2x + 8$

5. Which point is on a circle with a center of (3, -9) and a radius of 3?  
 A. (-4, 5)  
 B. (-1, 6)  
 C. (1, 6)  
 D. (6, -5)

6. Parallelogram ABCD has vertices as shown.  
  
 Write out the two sets, AC & BD, of the full distance formula; set equal to each other that would be used to prove that the diagonals of ABCD bisect each other. Then solve.

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Use the information provided to write the standard form of a circle.

7. Center:  $(2\sqrt{3}, -5\sqrt{2})$  Radius =  $\sqrt{13}$

8. Center: (4, -14) and the point (6, 11) that lies on the circle.

Use the information provided to write the general form of a circle.

9.  $(x + 10)^2 + (y - 7)^2 = 9$

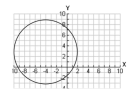
10.  $(x - 14)^2 + (y + 14)^2 = 9$

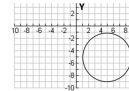
Use the information provided to write the standard form of a circle. Then identify the center and radius length.

11.  $x^2 + y^2 - 20x + 2y + 76 = 0$

12.  $2x^2 + 2y^2 + 28x + 24y + 21 = 0$

Find the center and the radius length to write the standard form of each circle.

13. 

14. 

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15. Prove or disprove that the points A(8, 6), B(8, -6) and C(-10, 0) are the vertices of an isosceles triangle inscribed in the circle centered at the origin Q and passing through the point P(3,  $\sqrt{91}$ ).

On a coordinate plane, a local television station is located at the origin and has a broadcast range of 50 miles.

16. Write an equation that represents the region covered by this television station.

17. Can a person who lives 18 miles to the East and 35 miles North of the station watch this TV station?

You're a city planner, so you know that streets run north to south and west to east to work. Your friend identifies lines at the center of 1st Street and 5th Street. Her sister identifies lines at the center of 7th Street and 10th Avenue. If necessary, draw a graph to find the cross street that:

18. Is halfway between their homes.

19. Is  $\frac{2}{3}$  of the way from Melissa's to Babacar's.

20. Separates their homes in a ratio of 3:1.

21. Separates their homes in a ratio of  $\frac{1}{2}$ .

Determine if point A lies on a circle with center C and point P which is known to lie on the circle.

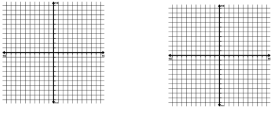
22. A(5, 0), C(0, 0), P(3, 4)

23. A(0, 4), C(2, 1), P(5, 3)

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For each figure using *prove* the type of quadrilateral, using distance and, or slope. *Keep diagonals in mind.*

24. ABCD: A(1,2), B(2,5), C(4,3), D(5,6)      25. EFGH: E(4,1), F(-2,3), G(2,-5), H(-4,-3)

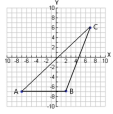


Write the equation of the lines below in slope-intercept form:  $y = mx + b$

26. Through (-4,5) and parallel to  $y = -\frac{2}{3}x - 5$ .      27. Through (4,1) and perpendicular to  $y = -2x - 2$

Find the area and perimeter of the following triangle. *Simplify terms required. Reminder: Draw altitude to find height.*

28. Area = \_\_\_\_\_



29. Perimeter = \_\_\_\_\_

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December 13, 2018 Thursday

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December 14, 2018, Friday

...Post test  
...Review

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