

# Geometry - Regular Packet #2

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We hope all is well with you and your family! Mr. Logue has created videos for the provided notes if you have internet access. They will be posted on google classroom. The code for your class is **5dmcez2**. Please complete Practice 5.1, Practice 5.2, Practice 5.5, Practice 5.6, the 2 "you try" problems on the back of Notes 5.6 continued, and the 2 quiz assignments by May 4<sup>th</sup> 11:00-1:00 and 4:00-6:00. Please email your teacher if you have any questions.



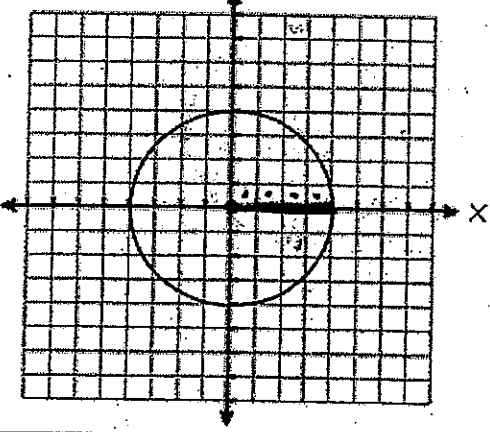
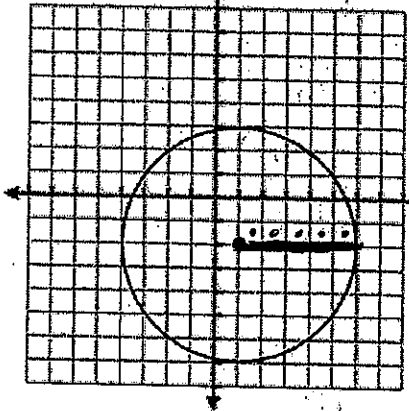
# Geometry

## Notes 5.1

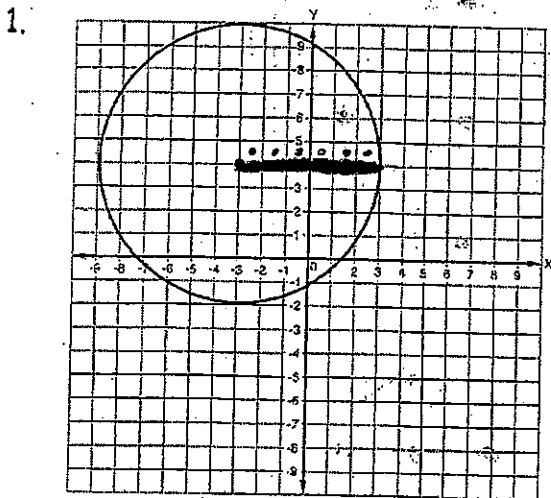
How do you write an equation for a circle with a known center and radius?  
How do you graph circles in the coordinate plane?

MGSE9-12.G.GPE.1: Derive the equation of a circle of a given center and radius using the Pythagorean theorem; complete the square to find the center and radius of a circle given by an equation.

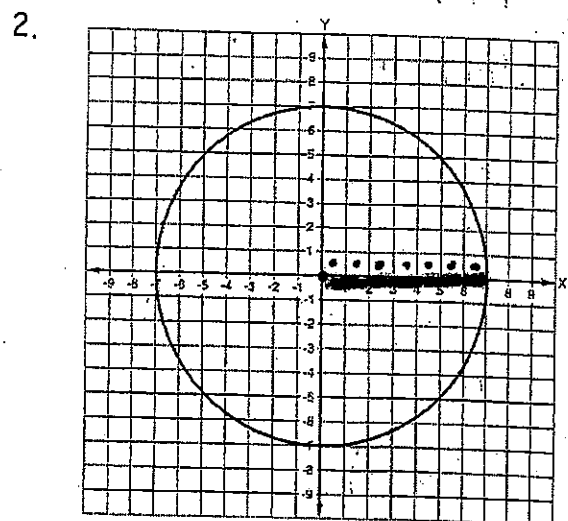
### Standard Form of a Circle:

Circle whose center is at the origin	Circle whose center is at (h, k)
Equation: $x^2 + y^2 = r^2$ Center: $(0, 0)$ Radius: $4$ $x^2 + y^2 = 16$ 	Equation: $(x - h)^2 + (y - k)^2 = r^2$ Center: $(1, -2)$ Radius: $5$ $(x - 1)^2 + (y + 2)^2 = 25$ 

Find center, radius, & equation of the circle.



Center:  $(-3, 4)$   
Radius:  $6$   
 $(x + 3)^2 + (y - 4)^2 = 36$



Center:  $(0, 0)$   
Radius:  $7$   
 $x^2 + y^2 = 49$

3. Write the equation of a circle with center (0, 0) and a radius of 6.

$$x^2 + y^2 = 36$$

5. Write an equation of a circle with center (-4, 0) and a diameter of 10.  $\div 2 = 5$

$$(x+4)^2 + y^2 = 25$$

7. Find the coordinates of the center and the measure of the radius.  $-(x-6)^2 + (y+3)^2 = 25$

Center: (6, -3) Radius = 5

Identify the center & radius. Graph the circle.

9.  $\frac{2x^2}{2} + \frac{2y^2}{2} = \frac{42}{2}$

$$x^2 + y^2 = 21$$

Center: (0, 0)

Radius: 4.6

10.  $(x+2)^2 + (y+3)^2 = 25$

Center: (-2, -3)

Radius: 5

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

Center: (0, 2)

Radius: 3

4. Write the equation of a circle with center (3, -2) and a radius of 4.

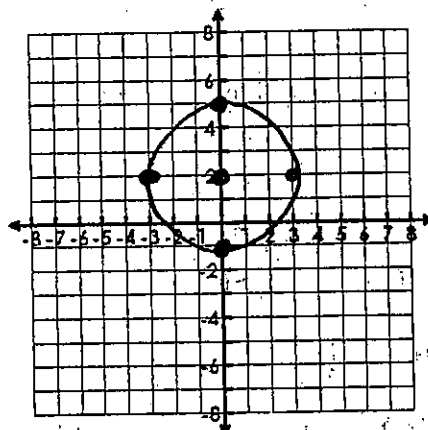
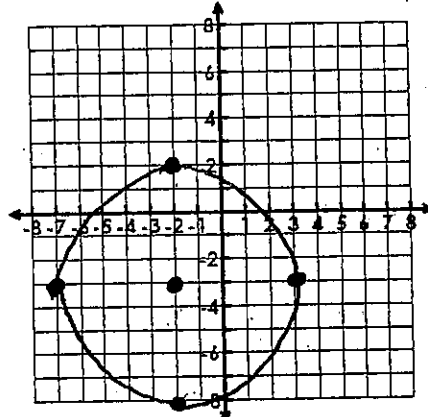
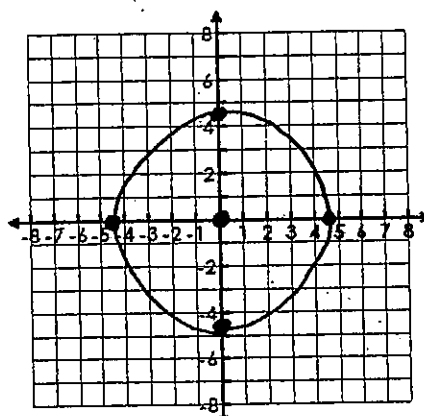
$$(x-3)^2 + (y+2)^2 = 16$$

6. Write an equation of a circle with center (2, -9) and a radius of  $\sqrt{11}$ .  $\rightarrow \sqrt{(11)}^2$

$$(x-2)^2 + (y+9)^2 = 11$$

8. Find the coordinates of the center and the measure of the radius.  $(x+4)^2 + y^2 = 15$

Center: (-4, 0) Radius: 3.9



# Geometry

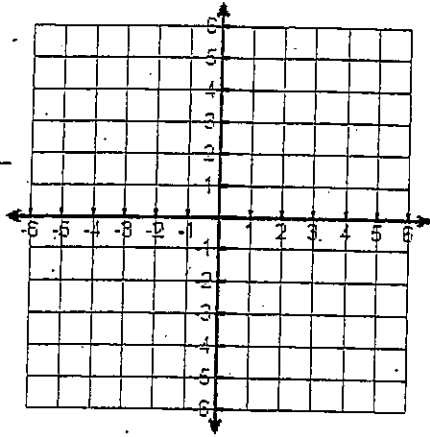
## Practice 5.1

Graph the following circles. State the center and radius.

1.  $x^2 + y^2 = 36$

Center: \_\_\_\_\_

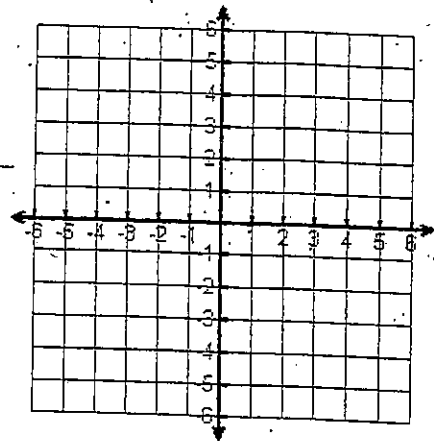
Radius: \_\_\_\_\_



2.  $x^2 + y^2 = 20$

Center: \_\_\_\_\_

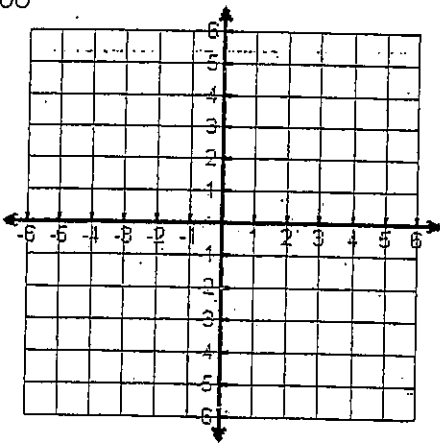
Radius: \_\_\_\_\_



3.  $4x^2 + 4y^2 = 100$

Center: \_\_\_\_\_

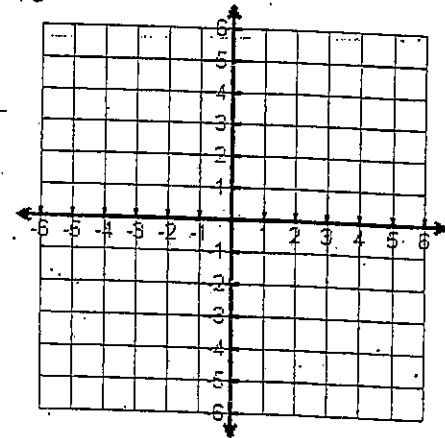
Radius: \_\_\_\_\_



4.  $(x + 2)^2 + y^2 = 16$

Center: \_\_\_\_\_

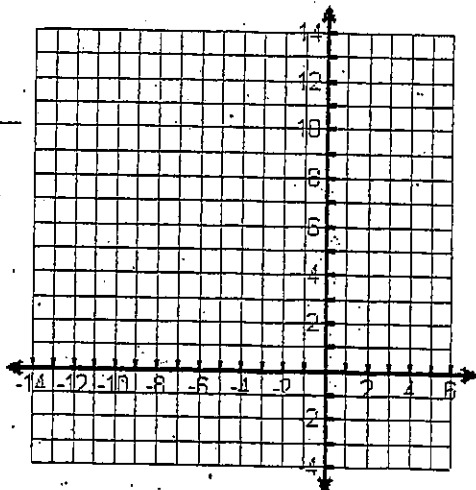
Radius: \_\_\_\_\_



5.  $(x + 4)^2 + (y - 6)^2 = 64$

Center: \_\_\_\_\_

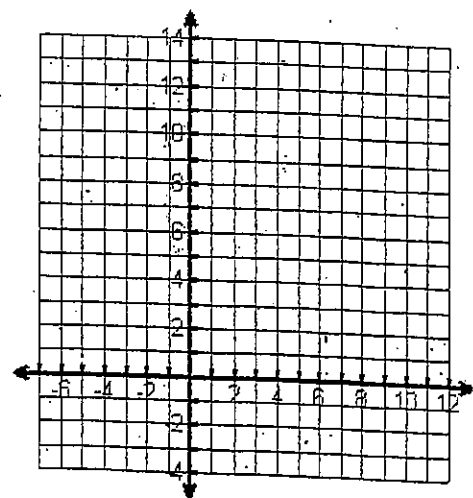
Radius: \_\_\_\_\_



6.  $(x - 3)^2 + (y - 5)^2 = 50$

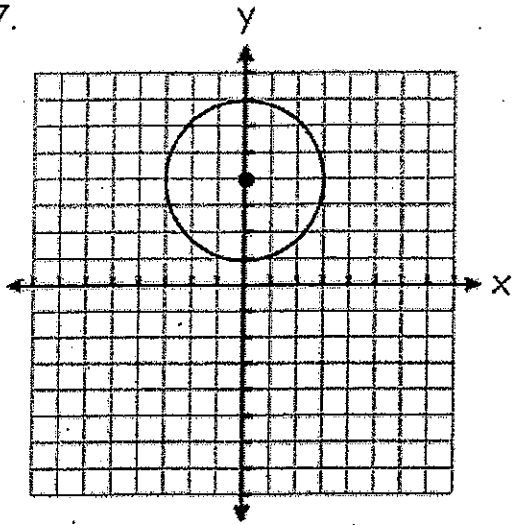
Center: \_\_\_\_\_

Radius: \_\_\_\_\_



Find the center, the radius, and write the equation of the circle.

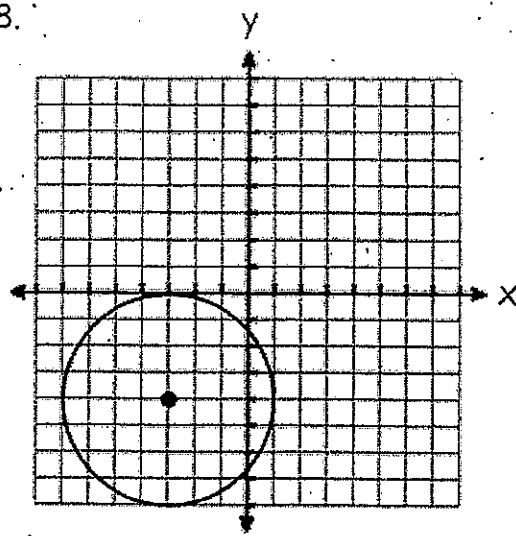
7.



Center \_\_\_\_\_ Radius \_\_\_\_\_

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8.



Center \_\_\_\_\_ Radius \_\_\_\_\_

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9. Write an equation of a circle with a center of  $(-5, 2)$  and a radius of 8.

10. Write an equation of a circle with a center of  $(-6, -1)$  and a diameter of 18.

11. Write an equation of a circle with a center of  $(0, -9)$  and a radius of  $\sqrt{15}$ .

12. Write an equation of a circle with a center of  $(0, 0)$  and a radius of 11.

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## Geometry

### Recall - Factoring

Factor.

1.  $x^2 - 11x + 30$

2.  $x^2 - 7x - 18$

3.  $x^2 + 9x - 10$

### Perfect Squares:

4.  $x^2 - 10x + 25$

5.  $x^2 + 6x + 9$

6.  $x^2 - 14x + 49$

7.  $x^2 + 18x + 81$

8.  $x^2 - 20x + 100$

9.  $x^2 + 12x + 36$





# Geometry

## Notes 5.2

- How do you write an equation of a circle from general form to standard form?

MGSE9-12.G.GPE.1: Derive the equation of a circle of a given center and radius using the Pythagorean theorem; complete the square to find the center and radius of a circle given by an equation.

Standard Form of a Circle: Center is at the origin  $\rightarrow x^2 + y^2 = r^2$

Center is at  $(h, k) \rightarrow (x-h)^2 + (y-k)^2 = r^2$

General Form of a Circle: Ex:  $x^2 + y^2 + 4x - 6y - 3 = 0$

$$*\left(\frac{b}{2}\right)^2*$$

Write the equation for the circle. State the center and the radius.

1.  $x^2 + y^2 + 4x - 6y - 3 = 0$

$+3 +3$

$$x^2 + 4x + \boxed{4} + y^2 - 6y + \boxed{9} = 3 + \boxed{4} + \boxed{9}$$

$$(x+2)(x+2) + (y-3)(y-3) = 16$$

$$\underset{\text{opp}}{(x+2)}^2 + \underset{\text{opp}}{(y-3)}^2 = 16$$

Center:  $(-2, 3)$

Radius: 4

$$\left(\frac{4}{2}\right)^2 = 2^2 = 4$$

$$\left(\frac{6}{2}\right)^2 = 3^2 = 9$$

2.  $x^2 + y^2 - 8x + 7 = 0$

$-7 -7$

$$x^2 - 8x + \boxed{16} + y^2 = -7 + \boxed{16}$$

$$(x-4)(x-4) + y^2 = 9$$

$$\underset{\text{opp}}{(x-4)}^2 + y^2 = 9$$

Center:  $(4, 0)$

Radius: 3

$$\left(\frac{8}{2}\right)^2 = 4^2 = 16$$

$$3. \frac{2x^2}{2} + \frac{2y^2}{2} - \frac{16x}{2} + \frac{4y}{2} = -\frac{20}{2}$$

$$x^2 + y^2 - 8x + 2y = -10$$

$$x^2 - 8x + \boxed{16} + y^2 + 2y + \boxed{1} = -10 + \boxed{16} + \boxed{1}$$

$$(x-4)_{\text{opp}}^2 + (y+1)_{\text{opp}}^2 = 7$$

Center: (4, -1)

Radius: 2.6

$$\left(\frac{8}{2}\right)^2 = 4^2 = 16$$

$$\left(\frac{2}{2}\right)^2 = 1^2 = 1$$

$$4. x^2 + y^2 - 14x + 10y + 38 = 0$$

$$x^2 - 14x + \boxed{49} + y^2 + 10y + \boxed{25} = -38 + \boxed{49} + \boxed{25}$$

$$(x-7)_{\text{opp}}^2 + (y+5)_{\text{opp}}^2 = 36$$

Center: (7, -5)

Radius: 6

$$\left(\frac{14}{2}\right)^2 = 7^2 = 49$$

$$\left(\frac{10}{2}\right)^2 = 5^2 = 25$$

$$5. x^2 + y^2 - 18x - 12y = 10$$

$$x^2 - 18x + \boxed{81} + y^2 - 12y + \boxed{36} = 10 + \boxed{81} + \boxed{36}$$

$$(x-9)_{\text{opp}}^2 + (y-6)_{\text{opp}}^2 = 127$$

Center: (9, 6)

Radius: 11.3

$$\left(\frac{18}{2}\right)^2 = 9^2 = 81$$

$$\left(\frac{12}{2}\right)^2 = 6^2 = 36$$

## Geometry

### ~~Warm Up~~ 5.2

#### Practice

Write the equation for the circle in standard form. State the center and the radius.

1.  $3x^2 + 3y^2 + 36x + 6y - 9 = 0$

2.  $x^2 + y^2 + 16x - 12y + 51 = 0$

3.  $x^2 + y^2 - 12x + 16 = 0$



$$4. x^2 + y^2 - 4x + 14y - 28 = 0$$

# Geometry

**Notes 5.5** - How can you find an equation of a line given the slope and the y-intercept of the line? Given the slope and a point on the line? Given two points on the line?

**GSE9-12.G.G.PE.5:** Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems.

## Writing Equations of Lines: Slope-Intercept Form

$$y = mx + b$$

↓                    ↓  
slope                y-intercept

Slope

$$\frac{\text{rise}}{\text{run}} \quad \text{or} \quad \frac{y_2 - y_1}{x_2 - x_1}$$

Find the slope and the y-intercept of each equation.

1.  $8x - y = 2$   
 $\frac{-8x}{-8x} \quad \frac{-y}{-8x} = \frac{2}{-8x}$

$$\frac{-y}{-1} = \frac{-8x + 2}{-1}$$

$$y = 8x - 2$$

$$m = 8$$

$$b = -2$$

2.  $2x + 6y = 18$   
 $\frac{-2x}{-2x} \quad \frac{6y}{-2x} = \frac{18}{-2x}$

$$\frac{6y}{6} = \frac{-2x + 18}{6}$$

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

$$m = -\frac{1}{3}$$

$$b = 3$$

3.  $X - 4y = 3$   
 $\frac{-X}{-X} \quad \frac{-4y}{-X} = \frac{3}{-X}$

$$\frac{-4y}{-4} = \frac{-X + 3}{-4}$$

$$y = \frac{1}{4}x - \frac{3}{4}$$

$$m = \frac{1}{4}$$

$$b = -\frac{3}{4}$$

## Writing an equation of a line given a graph.

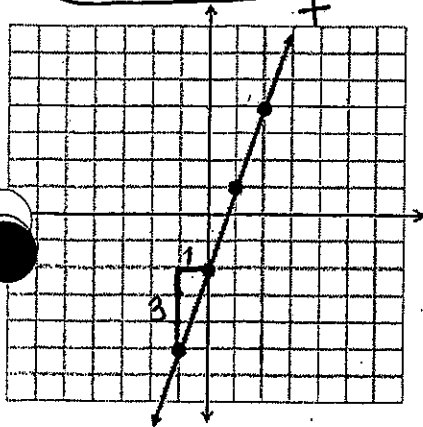
Step 1: Use any 2 "good" points on the graph to find the slope, m.

Step 2: Find the y-intercept on the graph, b.

Step 3: Substitute slope for m and y-intercept for b into the equation  $y = mx + b$ .

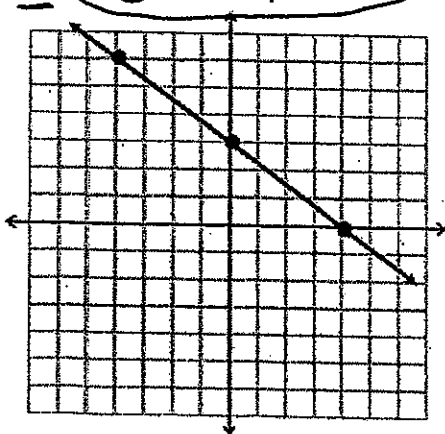
4.  $m = 3, b = -2$

$$y = 3x - 2$$



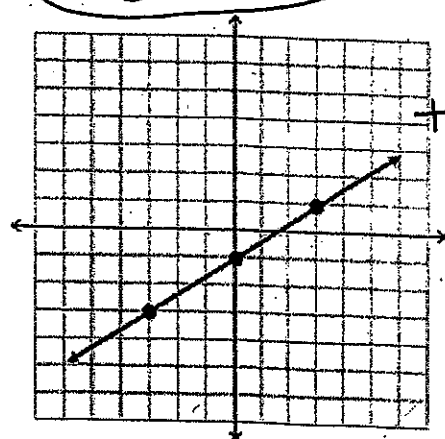
5.  $m = -\frac{3}{4}, b = 3$

$$y = -\frac{3}{4}x + 3$$



6.  $m = \frac{2}{3}, b = -1$

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



## Writing an equation of a line given $m$ and a point.

Substitute slope for  $m$  and the point  $(x, y)$  into  $y=mx+b$  and solve for  $b$ .

Substitute  $m$  and  $b$  back into the equation.

$$\sqrt{m} = \underline{5} \text{ and Point: } (2, 3)$$

$x, y$

$$3 = 5 \cdot 2 + b$$

$$3 = 10 + b$$

$$\begin{array}{r} -10 \quad -10 \\ \hline -7 = b \quad \checkmark \end{array}$$

$$y = 5x - 7$$

$$8. m = \underline{\frac{1}{2}} \text{ and Point: } (4, -6)$$

$x, y$

$$-6 = \frac{1}{2} \cdot 4 + b$$

$$-6 = 2 + b$$

$$\begin{array}{r} -2 \quad -2 \\ \hline -8 = b \end{array}$$

$$y = \frac{1}{2}x - 8$$

$$9. m = \underline{-2} \text{ and Point: } (-8, 3)$$

$x, y$

$$3 = -2 \cdot -8 + b$$

$$3 = 16 + b$$

$$\begin{array}{r} -16 \quad -16 \\ \hline -13 = b \end{array}$$

$$y = -2x - 13$$

# Geometry

## Practice 5.5

Find the slope and the y-intercept of each equation.

1.  $x + 4y = 20$

2.  $-4x + 2y = -14$

3.  $x - y = 8$

Write the equation of the line drawn.

4.  $m = \underline{\hspace{2cm}}$ ,  $b = \underline{\hspace{2cm}}$

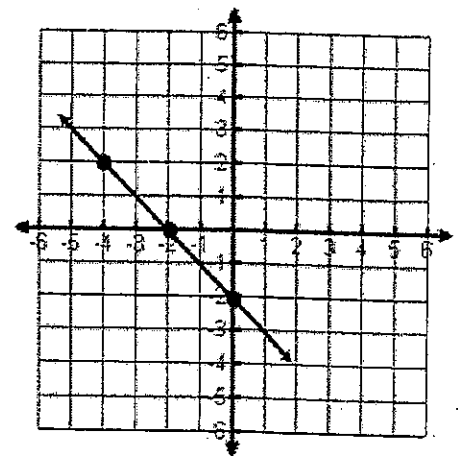
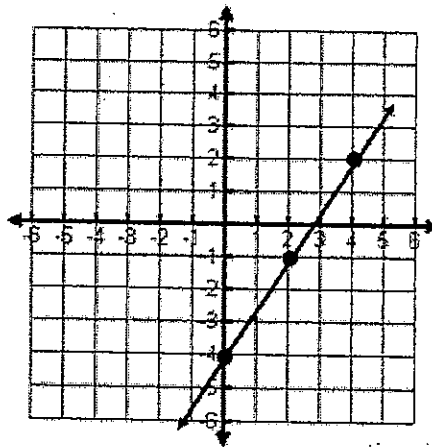
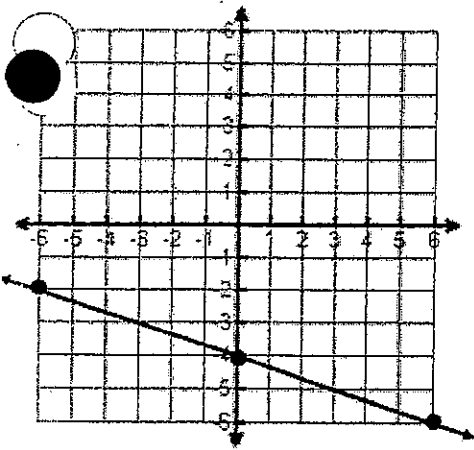
5.  $m = \underline{\hspace{2cm}}$ ,  $b = \underline{\hspace{2cm}}$

6.  $m = \underline{\hspace{2cm}}$ ,  $b = \underline{\hspace{2cm}}$

$y =$

$y =$

$y =$



Write the equation of a line in slope-intercept form given the slope and a point.

7.  $m = -2$ ,  $(-5, -5)$

8.  $m = \frac{1}{4}$ ,  $(-4, 2)$

9.  $m = -\frac{1}{3}$ ,  $(6, 3)$





# Geometry – Parallel & Perpendicular Equations

**Notes 5.6-** How do you write an equation of a line that is parallel or perpendicular to the graph of a given equation and that passes through a given point?

**MGSE9-12.G.G.PE.5:** Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems

Parallel Lines $\parallel$	Perpendicular Lines $\perp = 90^\circ$
<p><u>Same</u> slopes</p> <p><u>different</u> y-intercepts</p> <p><math>y = 6x + 4</math>      <math>y = 6x - 1</math></p> <p><math>m = 6</math>      <math>m = 6</math></p> <p><b>parallel</b></p>	<p><u>(+ &amp; -) opposite &amp; reciprocal (flip)</u> slopes</p> <p><u>Same or different</u> y-intercepts</p> <p><math>y = 5x + 4</math>      <math>y = -\frac{1}{5}x + 8</math></p> <p><math>m = 5</math>      <math>m = -\frac{1}{5}</math></p> <p><b>perpendicular</b></p>

Are these lines parallel, perpendicular or neither?

1.  $y = -2x + 3$  and  $4x + 2y = -10$

$m = -2$

$\frac{-4x}{-4x}$

$\frac{2y}{2} = \frac{-4x - 10}{2}$

$y = -2x - 5$

$m = -2$

**parallel**

2.  $y = -3x + 4$  and  $-6x + 3y = 3$

$m = -3$

$\frac{+6x}{+6x}$

$\frac{3y}{3} = \frac{6x + 3}{3}$

$y = 2x + 1$

$m = 2$

**Neither**

3.  $-9x + 3y = -12$  and  $-x + 3y = 9$

$\frac{+9x}{+9x}$

$\frac{+x}{+x}$

$\frac{3y}{3} = \frac{9x - 12}{3}$

$\frac{3y}{3} = \frac{x + 9}{3}$

$y = 3x - 4$

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

$m = 3$

$m = \frac{1}{3}$

**Neither** → flipped, but not opposite

4.  $3x + 4y = -4$  and  $-8x + 6y = 12$

$\frac{-3x}{-3x}$

$\frac{+8x}{+8x}$

$\frac{4y}{4} = \frac{-3x - 4}{4}$

$\frac{6y}{6} = \frac{8x + 12}{6}$

$y = -\frac{3}{4}x - 1$

$y = \frac{4}{3}x + 2$

$m = -\frac{3}{4}$

$m = \frac{4}{3}$

**perpendicular**

5. What is the slope that would be parallel to  $y = -5x + 6$ ?  $m = -5$

6. What is the slope that would be perpendicular to  $y = \frac{4}{5}x - 2$ ?  $m = -\frac{5}{4}$

7. What is the slope that would be perpendicular to  $y = 3x - 5$ ?  $m = -\frac{1}{3}$

8. What is the slope that would be parallel to  $-6x - 4y = 28$ ?

$$\begin{array}{r} +6x \quad +6x \\ -4y = 6x + 28 \\ \hline -4y = \frac{6x}{-4} + \frac{28}{-4} \\ y = -\frac{3}{2}x - 7 \end{array}$$

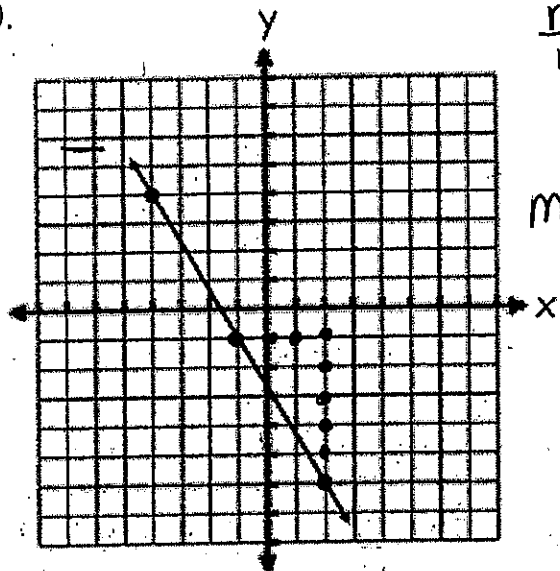
$$m = -\frac{3}{2}$$

9. What is the slope that would be perpendicular to  $4x + 8y = 16$ ?

$$\begin{array}{r} -4x \quad -4x \\ 8y = -4x + 16 \\ \hline \frac{8y}{8} = \frac{-4x}{8} + \frac{16}{8} \\ y = -\frac{1}{2}x + 2 \end{array}$$

$$m = 2$$

10.



$\frac{\text{rise}}{\text{run}}$

$$m = -\frac{5}{3}$$

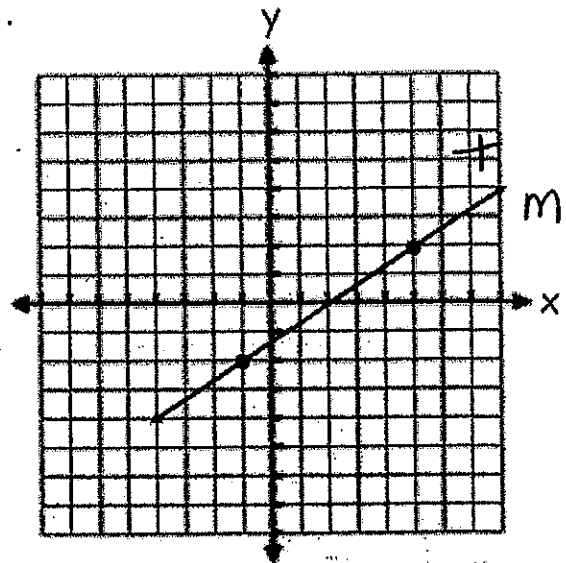
What slope is parallel to the given line?

$$m = -\frac{5}{3}$$

What slope is perpendicular to the given line?

$$m = \frac{3}{5}$$

11.



$$m = \frac{4}{6} = \frac{2}{3}$$

What slope is parallel to the given line?

$$m = \frac{2}{3}$$

What slope is perpendicular to the given line?

$$m = -\frac{3}{2}$$

## Geometry

### Practice 5.6 - Parallel & Perpendicular Lines

Determine whether the graphs of the two equations are parallel, perpendicular, or neither.

1.  $2x - 3y = 9$  and  $-4x + 6y = 12$

2.  $2x - 4y = -8$  and  $y = -2x + 4$

3.  $3y = -9x + 2$  and  $3x - y = 8$

4.  $-35x - 5y = 20$  and  $-6y = 42x + 12$

5. What is the slope that would be perpendicular to  $y = -\frac{3}{7}x - 2$ ?

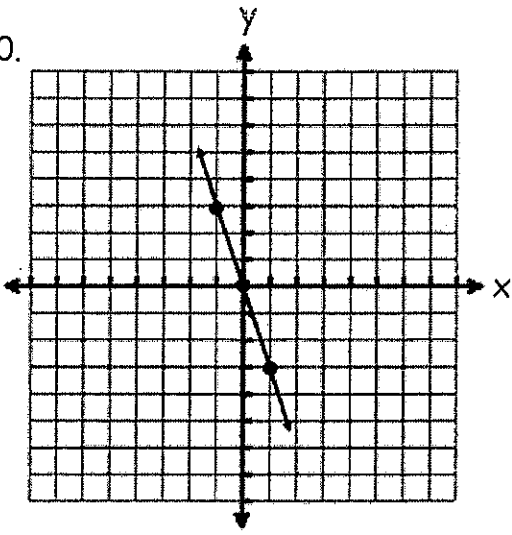
6. What is the slope that would be parallel to  $y = -6x + 10$ ?

7. What is the slope that would be perpendicular to  $y = 8x - 1$ ?

8. What is the slope that would be parallel to  $x + 9y = 45$ ?

9. What is the slope that would be perpendicular to  $-2x + 10y = -30$ ?

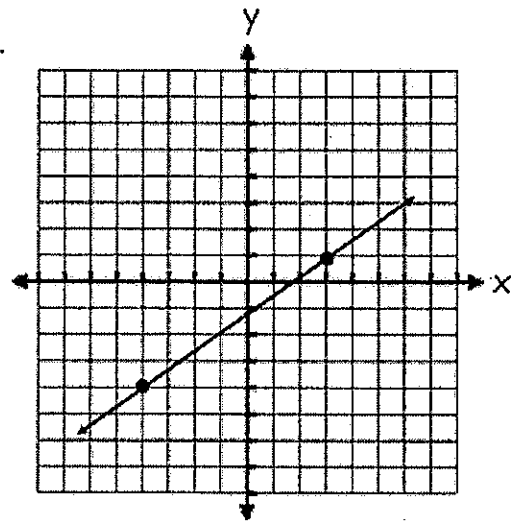
10.



What slope is parallel to the given line?

What slope is perpendicular to the given line?

11.



What slope is parallel to the given line?

What slope is perpendicular to the given line?

# Geometry

## Notes 5.6 Continued

### Writing an Equation of a Line PARALLEL to another and given a point.

- Given equation should be solved for  $y$  ( $y = mx + b$ ).
- Use the SAME slope of that line.
- Substitute  $m$  and  $(x, y)$  in  $y = mx + b$ . Solve for  $b$ .
- Write the equation using the slope and  $y$ -intercept.

1. Write a line parallel to the line  $2x + 4y = 2$  and passes through the point  $(-4, 6)$ .

2. Write a line parallel to the line  $y = 3x - 5$  and passes through the point  $(-5, -2)$ .

### Writing an Equation of a Line PERPENDICULAR to another and given a point.

Follow the same steps as shown above, but on step B use the perpendicular slope instead!!  
REMEMBER: Opposite & flip!!!

3. Write a line perpendicular to the line  $-x + 3y = -4$  and passes through the point  $(3, 0)$ .

4. Write a line perpendicular to the line  $-3x + 4y = 16$  and passes through the point  $(6, -3)$ .

**You try:**

5. Write a line perpendicular to the line  $2x + 3y = 9$  and passes through the point  $(6, -1)$ .

6. Write a line parallel to the line  $x + y = -8$  and passes through the point  $(-4, -2)$ .

# QUIZZZ

## Circle Equation Test Review

17 Questions

NAME : \_\_\_\_\_

CLASS : \_\_\_\_\_

DATE : \_\_\_\_\_

1. Write the equation of a circle with center (7, 0) with radius 3.

- a)  $(x - 7)^2 + y^2 = 9$                        b)  $x^2 + (y - 7)^2 = 9$   
 c)  $(x - 7)^2 + y^2 = 3$                        d)  $x^2 + (y - 7)^2 = 3$

2. What are the coordinates of the center and the radius of the circle with equation:

$$(x - 4)^2 + (y - 3)^2 = 25 ?$$

- a) Center (4,3)  
Radius = 5 units                       b) Center (4,3)  
Radius = 25 units  
 c) Center (-4,-3)  
Radius = 25 units                       d) Center (-4,-3)  
Radius = 5 units

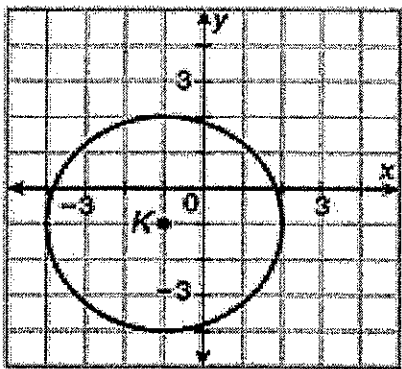
3. Write the standard equation of the circle with the given center and radius; center (0,0) and radius: 3

- a)  $x^2 + y^2 = 4$                        b)  $x^2 + y^2 = 81$   
 c)  $x^2 + y^2 = 9$





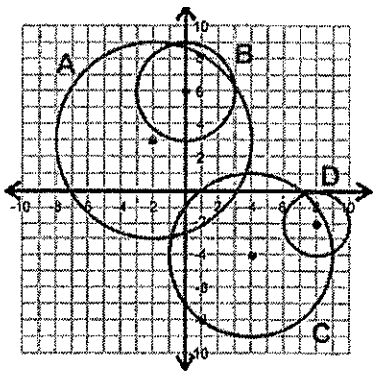
4.



What is the equation of the circle?

- a)  $(x+1)^2 + (y+1)^2 = 3$ 
 b)  $(x+1)^2 + (y-1)^2 = 3$   
 c)  $(x+1)^2 + (y+1)^2 = 9$ 
 d)  $(x-1)^2 + (y-1)^2 = 9$

5.

Which graph corresponds to  $(x-8)^2 + (y+2)^2 =$ 

- a) A
  b) B  
 c) C
  d) D

6. What is the equation of the circle, with centre  $(-4, 5)$  and radius 6 units?

- a)  $(x-4)^2 + (y+5)^2 = 6$ 
 b)  $(x-4)^2 + (y+5)^2 = 36$   
 c)  $(x+4)^2 + (y-5)^2 = 6$ 
 d)  $(x+4)^2 + (y-5)^2 = 36$

7. The diameter of a circle has length 12. The center is at  $(-5, 2)$ . Give the equation of the circle.

- a)  $(x-2)^2 + (y+5)^2 = 36$ 
 b)  $(x-5)^2 + (y+2)^2 = 6$   
 c)  $(x+5)^2 + (y-2)^2 = 36$ 
 d)  $(x+2)^2 + (y-5)^2 = 6$



8. A circle has the equation  $x^2 + y^2 - 12x + 8y + 3 = 0$ . Write the equation in standard form.

a)  $(x - 6)^2 + (y + 4)^2 = 49$

b)  $(x + 4)^2 + (y - 6)^2 = 49$

c)  $(x - 6)^2 + (y + 4)^2 = 55$

d)  $x^2 + y^2 = 55$

9. Change the following equation to standard form  $x^2 + y^2 - 4x + 12y - 8 = 0$

a)  $(x + 2)^2 + (y - 6)^2 = 48$

b)  $(x - 2)^2 + (y + 6)^2 = 48$

c)  $(x - 6)^2 + (y - 2)^2 = 48$

d)  $(x + 2)^2 + (y - 6)^2 = 48$

10. What is the center for the circle with this equation  $x^2 + y^2 + 4x + 6y - 36 = 0$ ?

a) (-2, 5)

b) (2, 7)

c) (-2, -7)

d) (-2, -3)

11. What is the coordinates of the centre and the radius of the circle with equation:

$$(x - a)^2 + (y - b)^2 = r^2 ?$$

a) Centre (a,b)  
Radius =  $r^2$  units

b) Centre (-a,-b)  
Radius = r units

c) Centre (a,b)  
Radius = r units

d) Centre (-a,-b)  
Radius =  $r^2$  units

12. What is the coordinates of the centre and the radius of the circle with equation:

$$(x - 1)^2 + (y - 2)^2 = 3^2 ?$$

a) Centre (-1,-2)  
Radius = 3 units

b) Centre (1,2)  
Radius = 3 units

c) Centre (-1,-2)  
Radius = 9 units

d) Centre (1,2)  
Radius = 9 units



13. What is the coordinates of the centre and the radius of the circle with equation:

$$(x - 4)^2 + (y - 3)^2 = 25 ?$$

- a) Centre (4,3)  
Radius = 5 units
- b) Centre (4,3)  
Radius = 25 units
- c) Centre (-4,-3)  
Radius = 25 units
- d) Centre (-4,-3)  
Radius = 5 units

14. In the equation  $(x-4)^2+(y-3)^2=25$ , the radius is

- a) 4
- b) 3
- c) 5
- d) 25

15. In the equation  $(x+2)^2+(y-3)^2=4$ , the radius of the circle is...

- a) 4
- b) 2
- c) 3
- d) 16

16. In the equation  $(x-3)^2+(y-2)^2=16$ , the radius of the circle is...

- a) 16
- b) 32
- c) 3
- d) 4

17. In the equation  $(x+2)^2+(y-3)^2=4$ , the center of the circle is at...

- a) (-2, 3)
- b) (-3, 2)
- c) (2, -3)
- d) (3, -2)



# QUIZZIZZ

## Parallel and Perpendicular Slopes

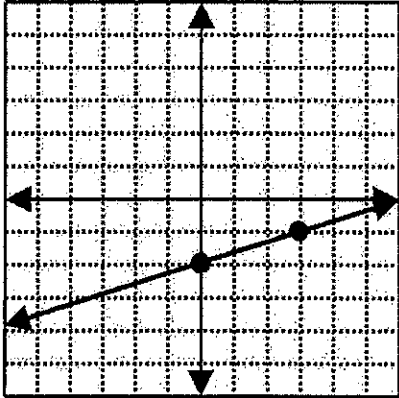
20 Questions

NAME: \_\_\_\_\_

CLASS: \_\_\_\_\_

DATE: \_\_\_\_\_

1.



Write the equation of the line.

a)  $y = -1/3x - 2$

b)  $y = 1/3x - 2$

c)  $y = 3x - 2$

d)  $y = -3x - 2$

2. Write the equation of the line with slope = 5 and that goes through point (3, -5)

a)  $y = 5x - 5$

b)  $y = 5x - 20$

c)  $y = 5x + 20$

d)  $y = 5x + 15$

3. If a line has a slope of  $3/4$  a line that is parallel has a slope of what?

a)  $3/4$

b)  $4/3$

c)  $-3/4$

d)  $-4/3$

4. If a line has a slope of  $-5/6$  a line that is parallel has a slope of what?

a)  $-5/6$

b)  $6/5$

c)  $5/6$

d)  $-6/5$





5.  $y = -2/3x + 2$   
 $y = 3/2x + 9$   
These lines are...

- a) Parallel  b) Perpendicular  
 c) Neither

6.  $y = 3x + 2$   
 $y = 3x - 3$   
These lines are...

- a) Parallel  b) Perpendicular  
 c) Neither  d) The same line

7.  $-6x + y = 2$   
 $6x + y = 2$   
These lines are...

- a) Parallel  b) Perpendicular  
 c) Neither

8. A line is perpendicular to  $y = 2x - 7$ .  
What is the slope of this line?

- a) -2  b) 1/2  
 c) -1/2  d) 2

9.  $y = \frac{-2}{7}x + 4$  and  $y = \frac{7}{2}x - 3$  are parallel lines

- a) True  b) False

10. Write an equation of a line that passes through the point  
(5,-1) and is parallel to the line  $y = (-3/5)x - 3$

- a)  $y = (-3/5)x + 2$   b)  $y = (-3/5)x - 2$   
 c)  $y = (3/5)x + 2$   d)  $y = (5/3) + 2$



17. Write an equation for a line parallel to the line

$$y = 1/3x - 4 \text{ through } (-3, 2)$$

a)  $y = 2/3x + 3$

b)  $y = -1/3x + 3$

c)  $y = 1/3x + 3$

d)  $y = -5/3x + 3$

18. Write an equation of a line perpendicular to

$$y = -1/5x + 5 \text{ through } (-1, -3)$$

a)  $y = 5x + 2$

b)  $y = -5x - 5$

c)  $y = -5x + 2$

d)  $y = 2x - 5$

19. These lines are.....

$$3x + y = 9$$

$$6x + 2y = 12$$

 a) Parallel b) Perpendicular c) Neither

20. These lines are.....

$$y = 4x$$

$$x + 4y = 12$$

 a) Parallel b) Perpendicular c) Neither

