

16

Name: _____

Date: _____ Block: _____

corrections due tmrw

1. Using the two points (3, -8) and (9, 10):

a. Find the midpoint.

Midpoint: (6, 1)

b. Find the distance between the two points.

Distance: $\frac{\sqrt{360} \text{ or } 18.97}{6\sqrt{10}}$

$$\sqrt{(9-3)^2 + (10-(-8))^2} = \sqrt{36+18^2} = \sqrt{360}$$

c. Find the slope.

$$\frac{10 - (-8)}{9 - 3} = \frac{18}{6}$$

Slope: 3

2. Write the equation of a line that passes through the point (10, 4) and is:

a. parallel to the line $y = -\frac{1}{2}x + 2$.

Equation: $y = \frac{1}{2}x + 9$

$$4 = 10(-\frac{1}{2}) + b$$

$$b = 9$$

b. perpendicular to the line $y = -\frac{1}{2}x + 2$.

Equation: $y = 2x - 16$

$$4 = 10(2) + b$$

$$-20$$

3. Find the **other endpoint** of a line segment with one endpoint (-30, 12) and midpoint (3, -4).

$$\frac{-30 + x}{2} = 3$$

$$\frac{12 + y}{2} = -4$$

Other Endpoint: (36, -20)

$$-30 + x = 6$$

$$12 + y = -8$$

$$-12$$

4. Find the coordinates of point T so that it partitions \overline{AB} into a ratio of 2:3.

A (-16, -7) and B (-6, 8)

Point T: $(-12, -1)$

$$-16 + \frac{2}{5}(-6 + 16) = -16 + 4 = -12$$

$$-7 + \frac{2}{5}(8 + 7) = -7 + 6 = -1$$

5. A circle is described by the equation $(x+3)^2 + (y+2)^2 = 4$.

a. What are the coordinates of the center of the circle? $(-3, -2)$

b. What is the measure of the diameter? $r=2$ 4

6. Rewrite the following equation in the Standard (center-radius) form of the equation of a circle.
 $x^2 + y^2 - 8x + 14y + 56 = 0$

$$x^2 - 8x + 16 + y^2 + 14y + 49 = 56 + 16 + 49$$

$$(x-4)^2 + (y+7)^2 = 81$$

Standard form: $(x-4)^2 + (y+7)^2 = 81$

7. Write the equation of a circle with the center (11, 7) and a diameter of 18. $r=9$

Equation: $(x-11)^2 + (y-7)^2 = 81$

$$(x-h)^2 + (y-k)^2 = r^2$$

8. A circle has diameter with endpoints at (-2, 6) and (4, -8).

a. Find the center of the circle.

Center: (1, -1)

$$\frac{-2+4}{2} \quad , \quad \frac{6-8-2}{2}$$

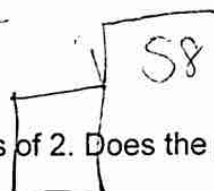
b. Find measure of the radius of the circle.

Radius: 7.6

$\sqrt{58}$ or

$$\sqrt{\left(\frac{-2+4}{2}\right)^2 + \left(\frac{6-8-2}{2}\right)^2}$$

$$\sqrt{9+49}$$



9. Circle C has a center of (2, -4) and has a radius of 2. Does the point (4, -5) fall on the circle? Justify with work for credit.

- $\sqrt{(4-2)^2 + (-5-(-4))^2}$
- graphed
- write an equation & test the point

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

$$(4-2)^2 + (-5+4)^2 = 4$$

10. Identify the center and radius of the circle with the following equation:

$$x^2 + y^2 - 4x + 6y + 4 = 0$$

$$x^2 - 4x + 4 + y^2 + 6y + 9 = -4 + 4 + 9$$

Center: (2, -3)

Radius: 3

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

11. $P = 29.74$

$A = 45$

12. $y = \frac{2}{3}x + \frac{13}{3}$