

Show your work or write a statement explaining how you came to your decision.

1) A circle is centered at (2, -5) and has radius 3. Write its equation in standard form.

~~A) $(x + 2)^2 + (y - 5)^2 = 3$~~

B) $(x - 2)^2 + (y + 5)^2 = 3$

~~C) $(x + 2)^2 + (y - 5)^2 = 9$~~

D) $(x - 2)^2 + (y + 5)^2 = 9$

2) When graphed, the circle with equation

$$x^2 + y^2 - 14x + 10y + 65 = 0$$

$$x^2 - \frac{14x}{2} + y^2 + \frac{10y}{2} - 65$$

$$(x - 7)^2 + (y + 5)^2$$

will lie ENTIRELY in Quadrant

A) I.

B) II.

C) III.

D) IV

C: (7, -5)

3) The circle $(x + 2)^2 + (y - 5)^2 = 9$. Will be shifted 3 units up and 2 units to the right. What is the equation of the new circle? $C(-2, 5) \rightarrow C'(0, 8)$

A) $x^2 + (y - 8)^2 = 9$

B) $(x + 1)^2 + y^2 = 9$

~~C) $(x - 1)^2 + (y - 7)^2 = 9$~~

D) $(x + 5)^2 + (y + 3)^2 = 9$

4) How is the equation of this circle written in standard form?

$$x^2 + y^2 - 6x + 14y = 142$$

$$x^2 - 6x + \square + y^2 + 14y + \square = 142 + \square + \square$$

$$(x - 3)^2 + (y + 7)^2 = 200$$

A) $(x - 3)^2 + (y + 7)^2 = 200$

B) $(x + 3)^2 + (y - 7)^2 = 200$

C) $(x - 6)^2 + (y + 14)^2 = 142$

D) $(x + 6)^2 + (y - 14)^2 = 142$

5) The equation of a circle is $(x + 12)^2 + (y + 16)^2 = (r_1)^2$, and the circle passes through the origin. The equation of the circle then changes to $(x - 30)^2 + (y - 16)^2 = (r_2)^2$, and the circle still passes through the origin. What are the values of r_1 and r_2 ?

~~A) $r_1 = 10$ and $r_2 = 17$~~

~~B) $r_1 = 10$ and $r_2 = 34$~~

C) $r_1 = 20$ and $r_2 = 17$

D) $r_1 = 20$ and $r_2 = 34$

Find distance of radius for each \odot

6) If the endpoints of the diameter of a circle are (10, 12) and (0, 2), what is the standard form equation of the circle?

~~A) $(x + 5)^2 + (y + 7)^2 = 50$~~

~~B) $(x + 5)^2 + (y + 7)^2 = 5\sqrt{2}$~~

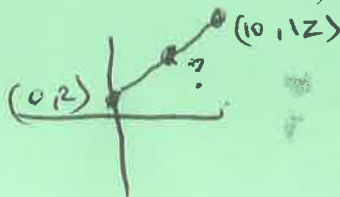
C) $(x - 5)^2 + (y - 7)^2 = 50$

D) $(x - 5)^2 + (y - 7)^2 = 5\sqrt{2}$

$$d = \sqrt{(5-0)^2 + (7-2)^2}$$

$$d = \sqrt{5^2 + 5^2}$$

$$d = \sqrt{50} \text{ so, radius} =$$



$$\frac{0+10}{2}$$

$$\frac{12+2}{2}$$

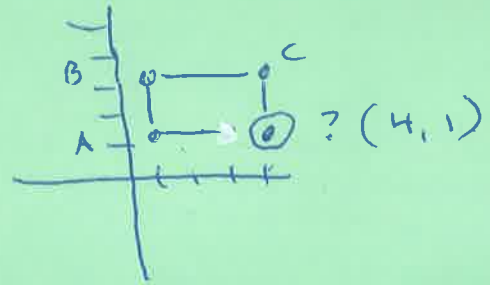
C(5, 7)

$$\frac{10}{2} = 5$$

$$\frac{14}{2} = 7$$

r()

- A (1, 1)
- B (1, 3)
- C (4, 3)



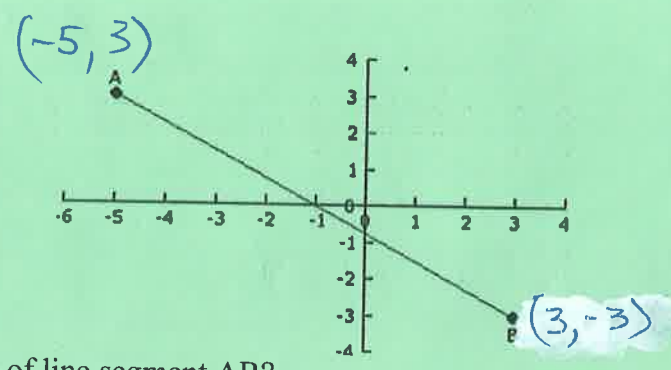
7) Rectangle ABCD has the coordinates shown. Find the coordinates of point D.

D

- A) (5, 1)
- B) (4, 2)
- C) (3, 1)
- D) (4, 1)

8)

C



$$\begin{aligned}
 \text{distance} &= \sqrt{(x-x)^2 + (y-y)^2} \\
 &= \sqrt{(-5-3)^2 + (3--3)^2} \\
 &= \sqrt{(-8)^2 + (6)^2} \\
 &= \sqrt{64 + 36} \\
 &= \sqrt{100} \\
 &= 10
 \end{aligned}$$

What is the length of line segment AB?

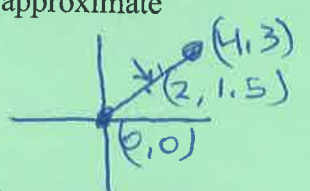
- A) 6 units
- B) 8 units
- C) 10 units
- D) 14 units

9) On a coordinate grid, the movie theater is located at (0,0) and the mall is located at (4,3). If the bowling alley is located at the midpoint between the theater and the mall, what is the approximate distance from the bowling alley to the mall? (Note: 1 unit equals 1 mile)

D

- A) 1.3 miles
- B) 1.5 miles
- C) 2 miles
- D) 2.5 miles

$$\begin{aligned}
 d &= \sqrt{(4-2)^2 + (3-1.5)^2} \\
 d &= \sqrt{2^2 + 1.5^2} \\
 d &= \sqrt{6.25} = 2.5
 \end{aligned}$$



$$\begin{aligned}
 &\left(\frac{x+x}{2}, \frac{y+y}{2} \right) \\
 &\left(\frac{4+0}{2}, \frac{3+0}{2} \right) \\
 &(2, 1.5)
 \end{aligned}$$

- 10) line j: $y = \frac{1}{4}x + 4$ line k: $y = \frac{1}{4}x + 3$
- line l: $y = 3x + 4$ line m: $y = 4x + \frac{1}{4}$

These four lines have been graphed on the same coordinate grid. Which lines are parallel to each other?

- A) j and k
- B) j and m
- C) l and k
- D) l and m

$$\begin{aligned}
 m_1 &= m_2 \\
 \text{slopes are equal}
 \end{aligned}$$

A