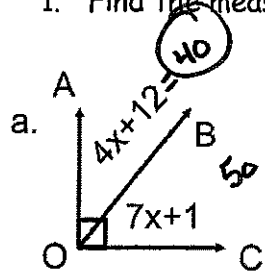
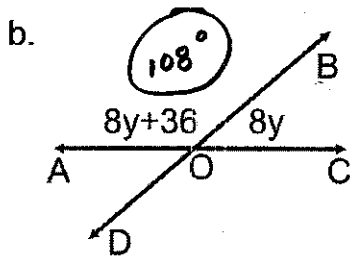


Directions: **SHOW ALL WORK-NO WORK, NO CREDIT!** Work independently; Mrs. Lewis will give you a zero if you work with others on this assignment.

1. Find the measure of $\angle AOB$ in each of the following diagrams.

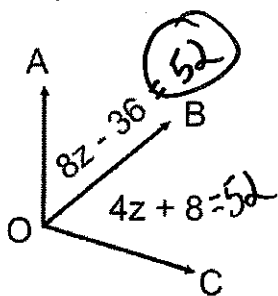


a.) $4x + 12 + 7x + 1 = 90$
 $11x + 13 = 90$
 $11x = 77$
 $x = 7$

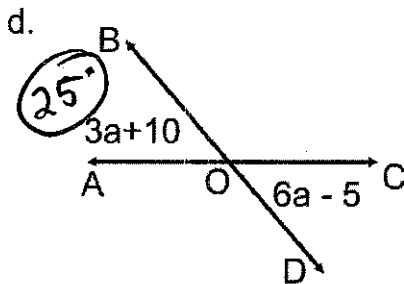


b.) $8y + 36 + 8y = 180$
 $16y + 36 = 180$
 $16y = 144$
 $y = 9$

c. Line OB bisects angle AOC.



c.) $8z - 36 = 4z + 8$
 $-4z + 36 = 4z + 8$
 $4z = 44$
 $z = 11$



d.) $3a + 10 = 6a - 5$
 $-6a + 10 = 6a - 5$
 $-3a = -15$
 $a = 5$

2. Two supplementary angles are in the ratio of 7:5. Find the value of the larger angle.

$7x + 5x = 180$
 $12x = 180$
 $x = 15$
 $7(15) = 105$

3. Which of the following sets of side lengths could represent a right triangle? (Circle all that apply).

a. {14, 28, 50} No!

$14^2 + 28^2 = 50^2$
 $980 = 2500$

b. {8, 17, 21} No!

$8^2 + 17^2 = 21^2$
 $353 = 441$

c. {9, 12, 15} yes!

$9^2 + 12^2 = 15^2$
 $225 = 225$

d. {7, 15, 17} No!

$7^2 + 15^2 = 17^2$
 $274 = 289$
 No!

4. What is the length of the line between the points (2, -4) and (13, 12)?

- a. $\sqrt{185}$ **b.** $\sqrt{377}$ c. 17 d. $\sqrt{481}$

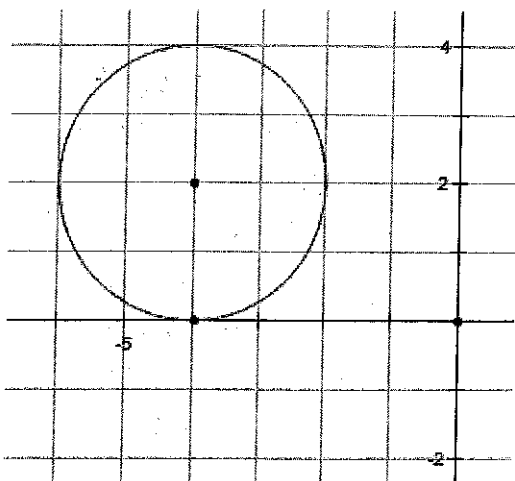
$$\sqrt{121 + 256}$$

$$\sqrt{377}$$

5. What is the center and radius of a circle whose equation is $(x - 12)^2 + (y + 5)^2 = 9$?

- a. (12, -5) and 9 **b.** (12, -5) and 3 ~~c.~~ (-12, 5) and 9 ~~d.~~ (-12, 5) and 3

6. What is the equation of the circle below?



~~a.~~ $(x - 4)^2 + (y + 2)^2 = 2$

~~b.~~ $(x - 4)^2 + (y + 2)^2 = 4$

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

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

7. Find the midpoint of the line AB when A(2a+4, 3b-2) and B(4a+4, b-6).

- a.** (3a+4, 2b-4) b. (6a+8, 4b-8) c. (2a, -2b-4) d. (a, -b-2)

$$\left(\frac{2a+4+4a+4}{2}, \frac{3b-2+b-6}{2} \right) \quad (3a+4, 2b-4)$$

$$\left(\frac{6a+8}{2}, \frac{4b-8}{2} \right)$$

8. What is the slope of a line perpendicular to the line whose equation is $\frac{-4y}{-4} = \frac{-8x+8}{-4}$?

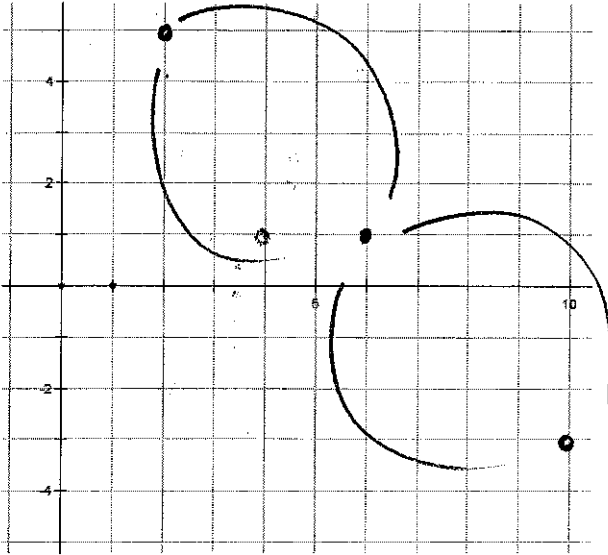
- a. $\frac{1}{2}$ **b.** $-\frac{1}{2}$ c. 2 d. -2

$$y = 2x - 2$$

$$m = 2$$

$$\perp m = -\frac{1}{2}$$

9. If $A(2,5)$ is an endpoint of line AB and $M(6, 1)$ is the midpoint, find the coordinates of B , the other endpoint.



- a. $(4, 3)$
 b. $(10, -3)$
 c. $(-2, 9)$
 d. $(2, -2)$

10. The two lines $2y = 4x + 4$ and $y + 2x = -4$ are
 a. Perpendicular b. parallel c. neither d. the same line.

$$y = 2x + 2$$

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

Perpendicular

11. What is the equation of a line parallel to the line $-4y = 1x + 8$ and through the point $(8, -5)$

- a. $y = 4x - 37$ b. $y = -4x + 27$ c. $y = -\frac{1}{4}x + 7$ d. $y = \frac{1}{4}x - 3$

$$\frac{-4y}{-4} = \frac{1x + 8}{-4}$$

$$y = -\frac{1}{4}x - 2$$

12. On the set of axes, solve the following system of equations graphically for all values of x and y

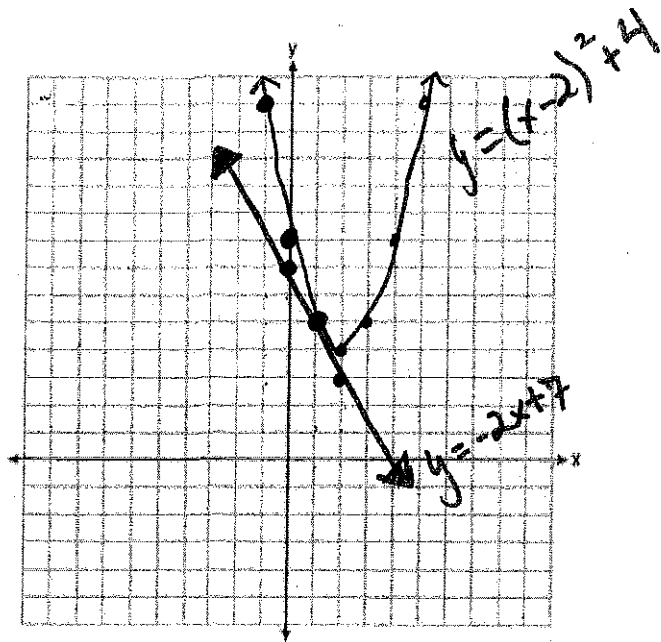
$$y = (x - 2)^2 + 4$$

$$\begin{array}{r} 4x + 2y = 14 \\ -4x \quad -4x \\ \hline \end{array}$$

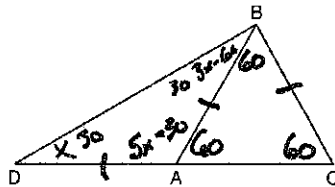
$$\frac{2y}{2} = \frac{-4x + 14}{2} \quad \frac{-4x}{2}$$

$$y = -2x + 7$$

Solution: $(1, 5)$



13. In the diagram of $\triangle BCD$ shown below, \overline{BA} is drawn from vertex B to point A on \overline{DC} , such that $\overline{BC} \cong \overline{BA}$.



In $\triangle DAB$, $m\angle D = x$, $m\angle DAB = 5x - 30$, and $m\angle DBA = 3x - 60$. In $\triangle ABC$, $AB = 6y - 8$ and $BC = 4y - 2$. [Only algebraic solutions can receive full credit.]

- Find $m\angle D$.

$$\begin{aligned} x + 3x - 60 + 5x - 30 &= 180 \\ 9x - 90 &= 180 \\ x &= 30 \end{aligned}$$

$$\boxed{m\angle D = 30}$$

- Find $m\angle BAC$.

$$\begin{array}{r} 5(30) - 30 \\ 120 \\ \hline 180 \\ -120 \\ \hline 60 \end{array}$$

$$\boxed{m\angle BAC = 60^\circ}$$

- Find the length of \overline{BC} .

$$\begin{array}{r} 6y - 8 = 4y - 2 \\ -4y + 8 \quad -4y + 8 \\ \hline 2y = 6 \quad y = 3 \\ \frac{2y}{2} = \frac{6}{2} \end{array}$$

$$\overline{BC} = 4(3) - 2 = \boxed{10}$$

- Find the length of \overline{DC} .

$$\begin{array}{r} \overline{AD} + \overline{AC} \\ 10 + 10 = \boxed{20} \end{array}$$