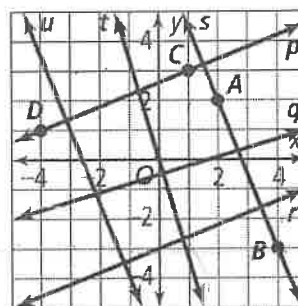Name ___Key___

9-1 Additional Practice

Polygons in the Coordinate Plane

Use the figure shown for Exercises 1–4. $s = -\frac{5}{2}$

1. Is line *t* parallel to line *s*? No

2. Is line *p* parallel to line *r*? Yes $p = 2/5$

3. Which lines are perpendicular to line *t*? q

4. Which lines are perpendicular to line *s*? p $s = \frac{-5}{2}$ $p = \frac{2}{5}$

5. What is the length of $\overline{AB}$? $\sqrt{29}$

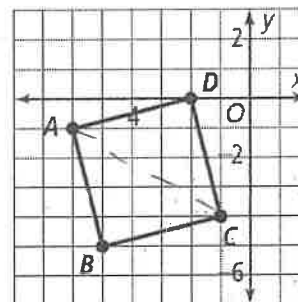6. What is the slope of $\overline{CD}$? $\frac{2}{5}$

7. What is the midpoint of $\overline{AB}$? $(3, -0.5)$

8. What is the midpoint of $\overline{CD}$? $(-1.5, 2)$

Use the figure shown for Exercises 9–12.

9. Is △*ABC* a scalene, isosceles, or equilateral triangle? Is it a right triangle? Explain.

   Isosceles Right Triangle

10. Find the area and perimeter of △*ABC*.

    $A = 8.5$ $P = 2\sqrt{17} + \sqrt{34}$

11. What type of quadrilateral is *ABCD*? How do you know?

    ABCD is a square. All vertices are right angles & all sides same length.

12. Find the area and perimeter of *ABCD*.

    $A = 17$ $P = 4\sqrt{17}$

13. A line passes through the point (0, *a*) and is perpendicular to another line with slope *m*. What is the equation of the line?

    $y = -\frac{1}{m}x + a$

14. The referee at a college football game is standing 12 yards behind the ball. The back judge is standing 22 yards in front of the ball. The field judge is standing exactly halfway between them. Using coordinates to model the situation, find how far in front of the ball the field judge is. Explain.   5 yds.

9-3 Additional Practice

Circles in the Coordinate Plane

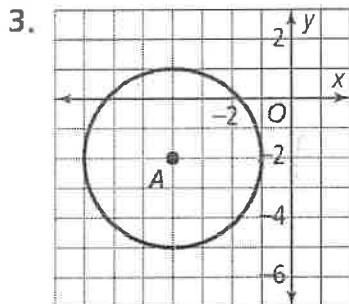**Find the center and radius for each equation of a circle.**

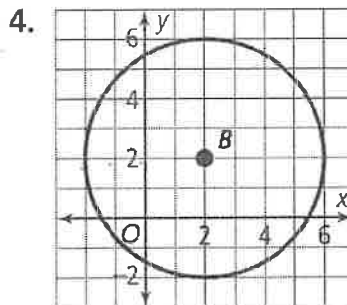1. $(x + 5)^2 + (y - 6)^2 = 121$

$C \cdot (-5, 6) \qquad r = 11$

2. $(x - 3)^2 + (y + 9)^2 = 36$

$C: (3, -9) \qquad r = 6$

Write the equation for the circle shown in each graph.

3.

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

4.

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

Write the equation for each circle with the given radius and center.

5. radius: 2, center: (4, −3)

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

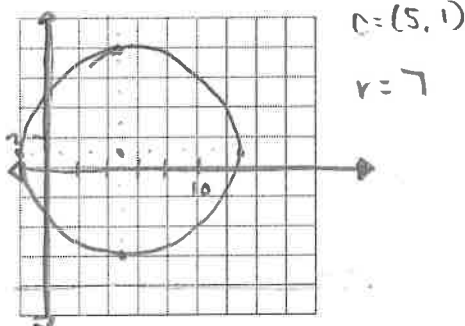6. radius: 7, center: (−1, 10)

$(x + 1)^2 + (y - 10)^2 = 49$

Determine whether each given point lies on the circle with the given radius and center.

7. (6, 8); radius: 4, center: (3, 5)

$(6 - 3)^2 + (8 - 5)^2 = 4^2 \rightarrow 9 + 9 \neq 16$

No

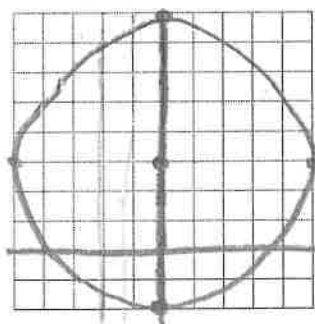8. ($\sqrt{17}$, 4); radius: 9, center: (0, −4)

$(\sqrt{17} - 0)^2 + (4 + 4)^2 = 9^2$

$17 + 64 = 81 \rightarrow 81 = 81$

yes

Graph each equation.

9. $(x - 5)^2 + (y - 1)^2 = 49$

$c = (5, 1)$

$r = 7$

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

11. If the center of a circle is at (*a*, *b*) and the radius of the circle is *c*, how would you write the equation of the circle? $(x - a)^2 + (y - b)^2 = c^2$

12. A machine part is a 4-in.-square piece of metal plate with a round hole 2 in. in diameter drilled through the center. What is the equation of the circle given that the piece of metal is placed in Quadrant 1 with its corner at the origin?

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