Lesson 7 Practice Problems

1. The point $(6, y)$ is the same distance from $(4, 1)$ as it is from the x-axis. What is the value of y?

2. A parabola is defined as the set of points the same distance from $(6, 2)$ and the line $y = 4$. Select **all** points that are on this parabola.

   A. $(1, -2)$

   B. $(2, -1)$

   C. $(6, 2)$

   D. $(7, 3)$

   E. $(8, 2)$

3. Compare and contrast the parabolas with these definitions.

   - parabola A: points that are the same distance from $(0, 4)$ and the x-axis
   - parabola B: points that are the same distance from $(0, -6)$ and the x-axis

4. Find the center and radius of the circle represented by the equation $x^2 + y^2 - 8y + 5 = 0$.

(From Unit 6, Lesson 6.)

5. Match each expression with the value needed in the box in order for the expression to be a perfect square trinomial.

A. $x^2 + 14x + \square$	1. $\frac{1}{16}$
B. $x^2 - \frac{1}{2}x + \square$	2. 49
C. $c^2 - 10c + \square$	3. 25
D. $z^2 + z + \square$	4. $\frac{1}{4}$

(From Unit 6, Lesson 6.)

6. Write each expression as the square of a binomial.

a. $x^2 - 12x + 36$

b. $y^2 + 8y + 16$

c. $w^2 - 16w + 64$

(From Unit 6, Lesson 5.)

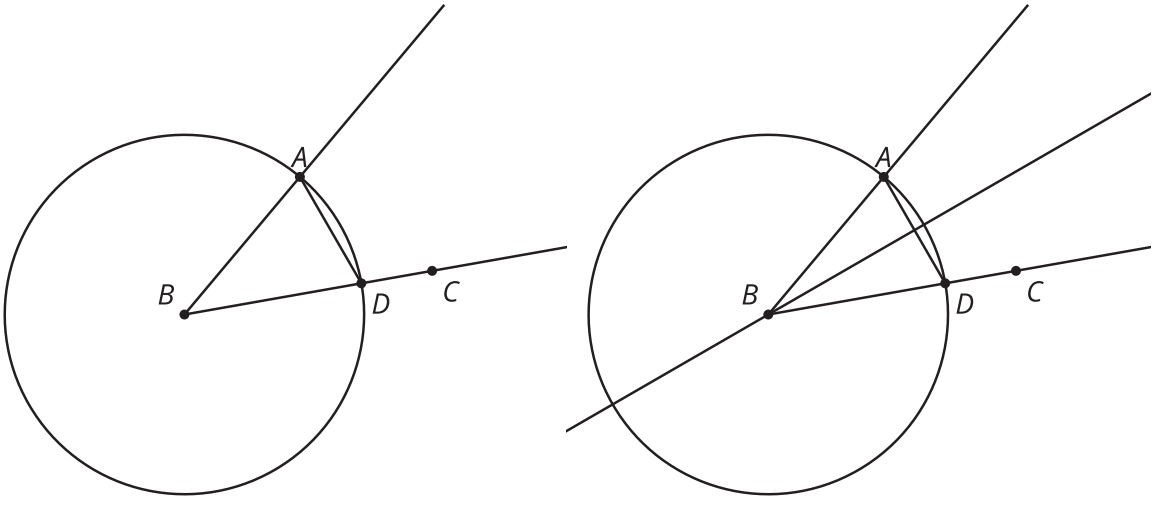
7. Write an equation of a circle that is centered at $(1, -4)$ with a radius of 10.

(From Unit 6, Lesson 4.)

8. The density of water is 1 gram per cm^3. An object floats in water if its density is less than water's density, and it sinks if its density is greater than water's. Will a solid bar of soap shaped like a rectangular prism with mass 1.048 kilograms and dimensions 5.6 centimeters, 13 centimeters, and 16 centimeters float or sink? Explain your reasoning.

(From Unit 5, Lesson 17.)

9. Jada has this idea for bisecting angle ABC. First she draws a circle with center B through A. Then she constructs the perpendicular bisector of AD.



Does Jada's construction work? Explain your reasoning. You may assume that the perpendicular bisector of line segment AD is the set of points equidistant from A and D.

(From Unit 1, Lesson 5.)