### 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.
	1. $(1,-2)$
	2. $(2,-1)$
	3. $(6,2)$
	4. $(7,3)$
	5. $(8,2)$
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.)
1. Match each expression with the value needed in the box in order for the expression to be a perfect square trinomial.
	1. ​​​​$x^{2}+14x+$
	2. ​​​​$x^{2}−\frac{1}{2}x+$
	3. $c^{2}−10c+$
	4. ​​​​$z^{2}+z+$
	5. $\frac{1}{16}$
	6. 49
	7. 25
	8. $\frac{1}{4}$
* (From Unit 6, Lesson 6.)
1. Write each expression as the square of a binomial.
	1. $x^{2}−12x+36$
	2. $y^{2}+8y+16$
	3. $w^{2}−16w+64$
* (From Unit 6, Lesson 5.)
1. Write an equation of a circle that is centered at $(1,-4)$ with a radius of 10.
* (From Unit 6, Lesson 4.)
1. The density of water is 1 gram per cm3. 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.)
1. 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.)



© CC BY 2019 by Illustrative Mathematics®