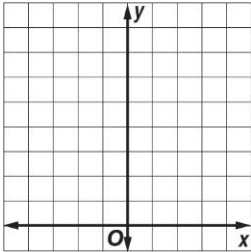


# Lesson 8 Homework Practice

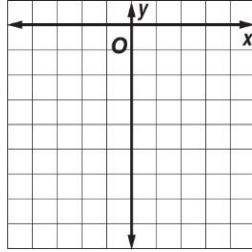
## Quadratic Functions

Graph each function.

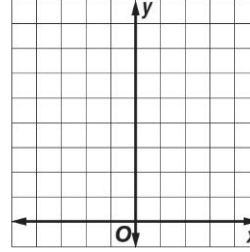
1.  $y = x^2$



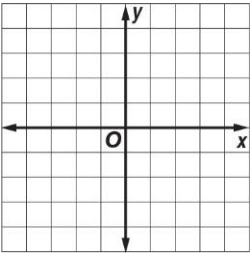
2.  $y = -x^2$



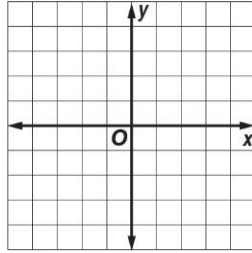
3.  $y = x^2 + 3$



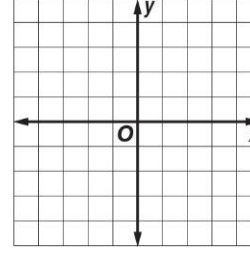
4.  $y = -x^2 + 3$



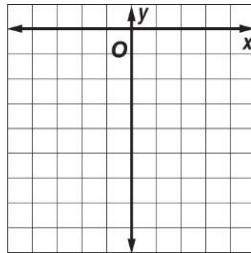
5.  $y = x^2 - 5$



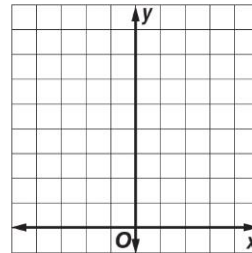
6.  $y = 3x^2 - 4$



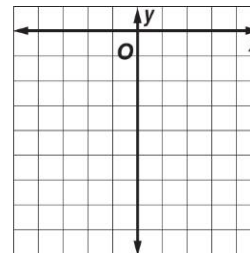
7.  $y = -2x^2 - 3$



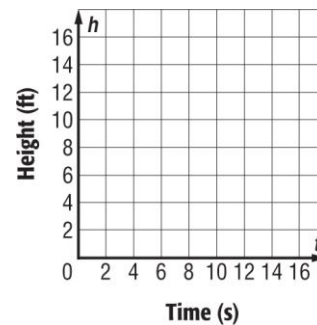
8.  $y = 6x^2$



9.  $y = -3x^2 - 2$



10. **BALL** The function  $h = -16t^2 + 25t + 5$  can be used to represent the height  $h$  in feet of a juggler's ball after  $t$  seconds of being tossed in the air by a juggler 5 feet tall. Graph the function. Use your graph to estimate the height of a juggler's ball that has been in the air for 1.5 seconds.



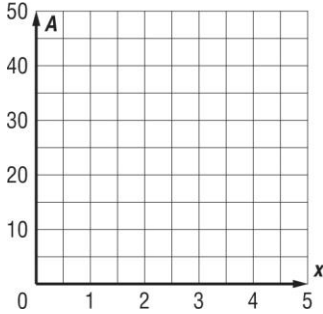
# Lesson 8 Problem-Solving Practice

## Quadratic Functions

**GEOMETRY** For Exercises 1–3, use the following information.

The quadratic equation  $A = 6x^2$  models the area of a triangle with base  $3x$  and height  $4x$ .

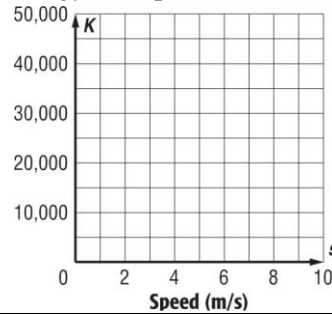
1. Graph the equation. Explain why you only need to graph the function in the upper right quadrant.



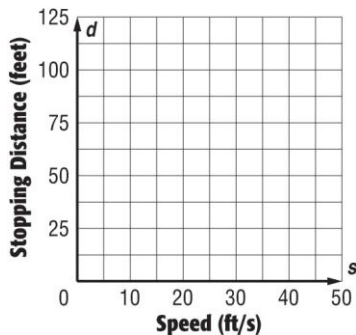
2. Explain how to find the area of the triangle when  $x = 3$  inches. Then find the area.

3. Explain how to use your graph to determine the value of  $x$  when the area is 24 square inches. Then find the base and height of the triangle when its area is 24 square inches.

4. **PHYSICS** The quadratic equation  $K = 500s^2$  models the kinetic energy in joules of a 1,000-kilogram car moving at a speed of  $s$  meters per second. Graph this function. Then use your graph to estimate the kinetic energy at a speed of 8 meters per second.



5. **CARS** The quadratic equation  $d = \frac{s^2}{20}$  models the stopping distance in feet of a car moving at a speed of  $s$  feet per second. Graph this function. Then use your graph to estimate the stopping distance at a speed of 40 feet per second.



6. **BUSINESS** The quadratic equation  $p = 50 + 2r^2$  models the gross profit made by a factory that produces  $r$  ovens. Graph this function. Then use your graph to estimate the profit for 5 ovens.

