Lesson 14 Practice Problems

1. Select **all** expressions that are perfect squares.

   A. $9x^2 + 24x + 16$

   B. $2x^2 + 20x + 100$

   C. $(7 - 3x)^2$

   D. $(5x + 4)(5x - 4)$

   E. $(1 - 2x)(-2x + 1)$

   F. $4x^2 + 6x + \frac{9}{4}$

2. Find the missing number that makes the expression a perfect square. Next, write the expression in factored form.

   a. $49x^2 - \_\_\_\_\_x + 16$

   b. $36x^2 + \_\_\_\_\_x + 4$

   c. $4x^2 - \_\_\_\_\_x + 25$

   d. $9x^2 + \_\_\_\_\_x + 9$

   e. $121x^2 + \_\_\_\_\_x + 9$

3. Find the missing number that makes the expression a perfect square. Next, write the expression in factored form.

   a. $9x^2 + 42x + \_\_\_\_\_$

   b. $49x^2 - 28x + \_\_\_\_\_$

   c. $25x^2 + 110x + \_\_\_\_\_$

   d. $64x^2 - 144x + \_\_\_\_\_$

   e. $4x^2 + 24x + \_\_\_\_\_$

4. a. Find the value of c to make the expression a perfect square. Then, write an equivalent expression in factored form.

standard form $ax^2 + bx + c$	factored form $(kx + m)^2$
$4x^2 + 4x$	
$25x^2 - 30x$	

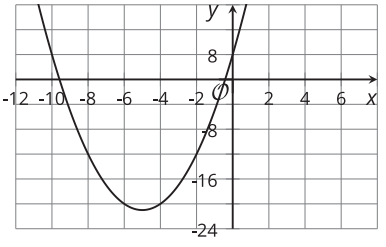
b. Solve each equation by completing the square.

$4x^2 + 4x = 3$

$25x^2 - 30x + 8 = 0$

5. For each function f, decide if the equation $f(x) = 0$ has 0, 1, or 2 solutions. Explain how you know.

A



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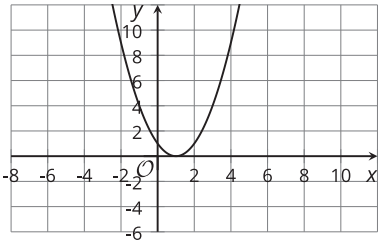

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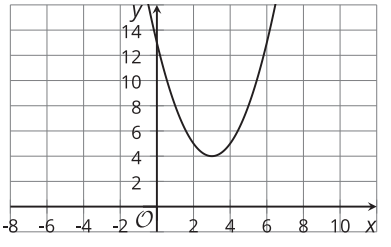

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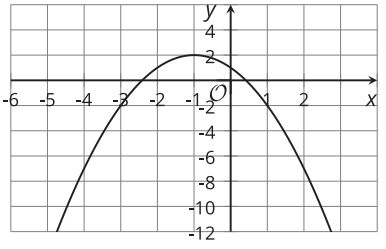
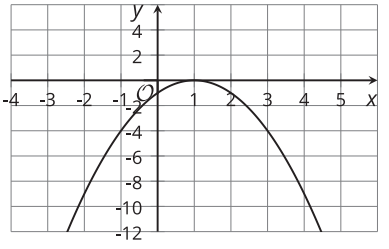
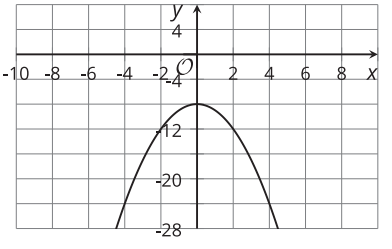


E



F



(From Unit 7, Lesson 5.)

6. Solve each equation.

$p^2 + 10 = 7p$ $x^2 + 11x + 27 = 3$ $(y + 2)(y + 6) = -3$

(From Unit 7, Lesson 9.)

7. Which function could represent the height in meters of an object thrown upwards from a height of 25 meters above the ground t seconds after being launched?

A. $f(t) = -5t^2$

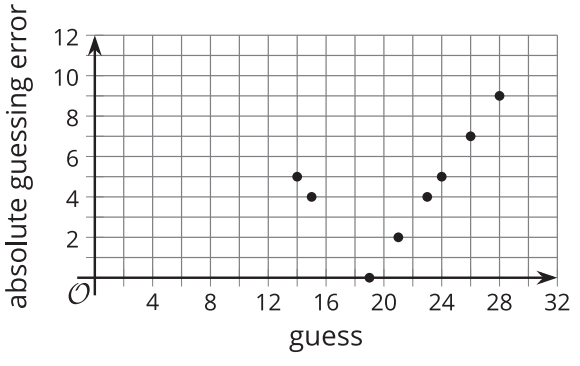
B. $f(t) = -5t^2 + 25$

C. $f(t) = -5t^2 + 25t + 50$

D. $f(t) = -5t^2 + 50t + 25$

(From Unit 6, Lesson 6.)

8. A group of children are guessing the number of pebbles in a glass jar. The guesses and the guessing errors are plotted on a coordinate plane.



a. Which guess is furthest away from the actual number?

b. How far is the furthest guess away from the actual number?

(From Unit 4, Lesson 13.)