Lesson 8 Practice Problems

1. Classify the graph of the equation $x^2 + y^2 - 8x + 4y = 29$.

   A. circle

   B. exponential curve

   C. line

   D. parabola

2. Write an equation that states (x, y) is the same distance from $(4, 1)$ as it is from the x-axis.

3. Select **all** equations which describe the parabola with focus (-1, -7) and directrix $y = 3$.

   A. $(x - 1)^2 + (y - 7)^2 = (y + 3)^2$

   B. $(x + 1)^2 + (y + 7)^2 = (y - 3)^2$

   C. $y = -20(x + 1)^2 - 2$

   D. $y = -20(x + 1)^2 + 2$

   E. $y = -\frac{1}{20}(x + 1)^2 - 2$

   F. $y = -\frac{1}{20}(x + 1)^2 + 2$

4. Parabola A and parabola B both have the x-axis as the directrix. Parabola A has its focus at $(3, 2)$ and parabola B has its focus at $(5, 4)$. Select **all** true statements.

    A. Parabola A is wider than parabola B.

    B. Parabola B is wider than parabola A.

    C. The parabolas have the same line of symmetry.

    D. The line of symmetry of parabola A is to the right of that of parabola B.

    E. The line of symmetry of parabola B is to the right of that of parabola A.

(From Unit 6, Lesson 7.)

5. A parabola has focus $(5, 1)$ and directrix $y = \text{-}3$. Where is the parabola's vertex?

(From Unit 6, Lesson 7.)

6. Select the value needed in the box in order for the expression to be a perfect square trinomial.

$x^2 + 7x + \square$

    A. 3.5

    B. 7

    C. 12.25

    D. 14.5

(From Unit 6, Lesson 6.)

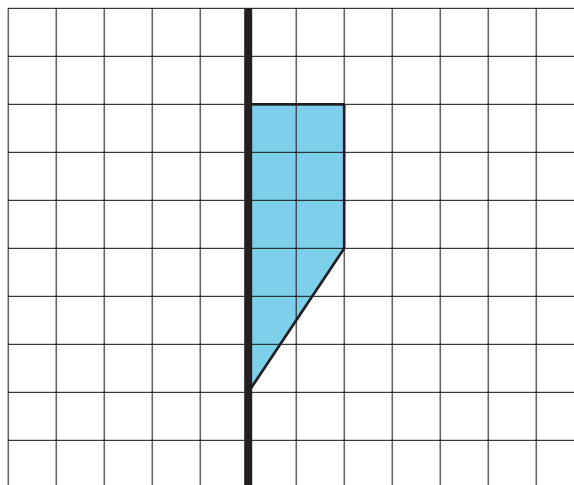7. Rewrite each expression as the product of 2 factors.

   a. $x^2 + 3x$

   b. $x^2 - 6x - 7$

   c. $x^2 + 4x + 4$

(From Unit 6, Lesson 5.)

8. Suppose this two-dimensional figure is rotated 360 degrees using the vertical axis shown. Each small square on the grid represents 1 square inch. What is the volume of the three-dimensional figure?

(From Unit 5, Lesson 15.)