Name: _____ **Hour:** _____

4-4 Review

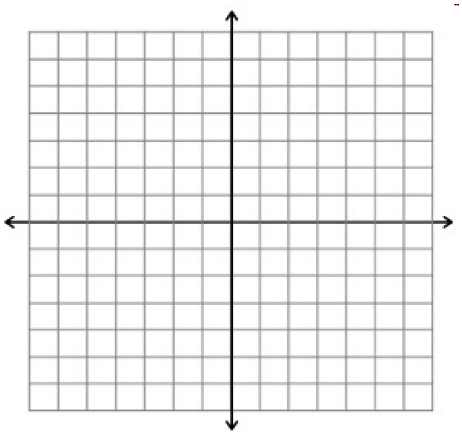
Multiple Choice
Identify the choice that best completes the statement or answers the question.

1. What steps transform the graph of $y = x^2$ to $y = -(x + 3)^2 + 5$?
   A) translate 3 units to the right, translate down 5 units B) translate 3 units to the left, translate up 5 units
   C) reflect across the x-axis, translate 3 units to the left, translate up 5 units
   D) reflect across the x-axis, translate 3 units to the right, translate down 5 units

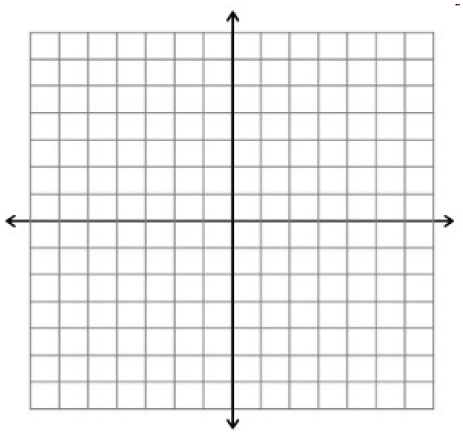
Problem

2. Graph.

   a) $y = (x-3)^2 + 2$



   b) $y = -2(x+1)^2 - 3$



3. A duck dives under water and its path is described by the quadratic function $y = 2x^2 - 4x$, where y represents the position of the duck in meters and x represents the time in seconds. The water surface is at $y = 0$. How deep does the duck dive?

_____ meters

Short Answer

4. Identify the vertex and the axis of symmetry of the graph of the function $y = 2(x + 2)^2 - 4$.

5. Identify the maximum or minimum value and the domain and range of the graph of the function $y = 2(x + 2)^2 - 3$.

6. Suppose a parabola has vertex (–8, –7) and also passes through the point (–7, –4). Write the equation of the parabola in vertex form.

What are the vertex and the axis of symmetry of the equation?

7. $y = 2x^2 + 24x - 16$

8. $y = -2x^2 + 8x - 20$

What is the maximum or minimum value of the function? What is the range?

9. $y = 2x^2 + 28x - 8$

10. $y = -2x^2 + 28x - 10$

What is the vertex form of the equation?

11. $y = x^2 - 2x + 8$

12. $y = -x^2 + 2x - 8$

What is the expression in factored form?

13. $x^2 - 6x + 8$

14. $-x^2 - x + 42$

What is the expression in factored form?

15. $16x^2 + 8x$

16. $2x^2 + 16x + 30$

17. $3x^2 + 26x + 35$

18. $5x^2 - 22x - 15$