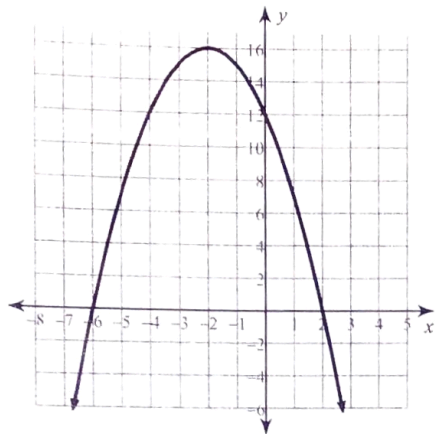


Unit 4 Review Day 1

Name _____

Date _____

1)



Complete each part of the question using the graph.

Axis of symmetry:

Vertex:

y- intercept:

Zeros:

Domain:

Range:

Increasing interval:

Decreasing interval:

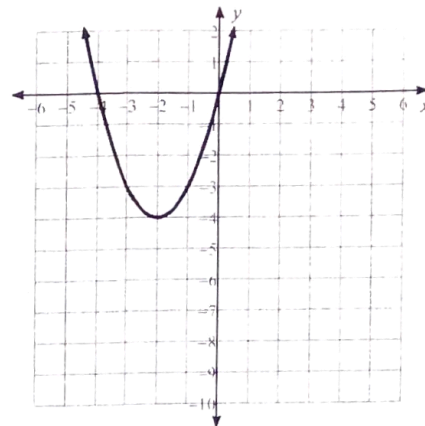
End behavior: as $x \rightarrow \underline{\hspace{1cm}}$, $f(x) \rightarrow \underline{\hspace{1cm}}$

as $x \rightarrow \underline{\hspace{1cm}}$, $f(x) \rightarrow \underline{\hspace{1cm}}$

Which choice below is the equation of the graph?

- A) $f(x) = -x^2 + 4x + 12$
- B) $f(x) = x^2 - 4x + 12$
- C) $f(x) = x^2 + 4x + 12$
- D) $f(x) = -x^2 - 4x + 12$

2)



Complete each part of the question using the graph.

Axis of symmetry:

Vertex:

y- intercept:

Roots:

Domain:

Range:

Increasing interval:

Decreasing interval:

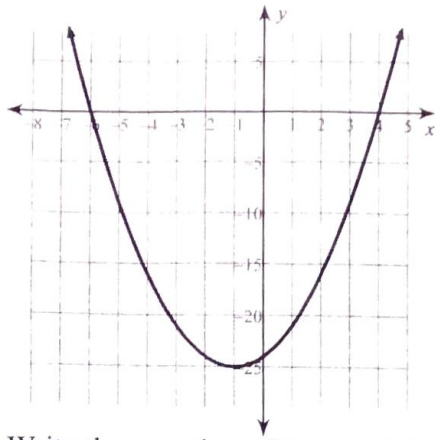
End behavior: as $x \rightarrow \underline{\hspace{1cm}}$, $f(x) \rightarrow \underline{\hspace{1cm}}$

as $x \rightarrow \underline{\hspace{1cm}}$, $f(x) \rightarrow \underline{\hspace{1cm}}$

Which choice below is the equation of the graph?

- A) $y = (x - 4)^2 - 2$
- B) $y = (x + 4)^2 - 2$
- C) $y = (x - 2)^2 - 4$
- D) $y = (x + 2)^2 - 4$

3)



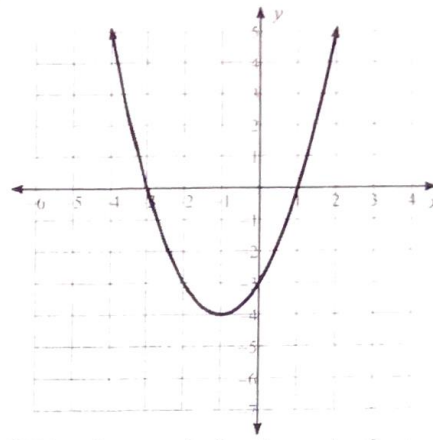
Write the equation of the parabola above in

1) factored form

2) standard form

3) vertex form

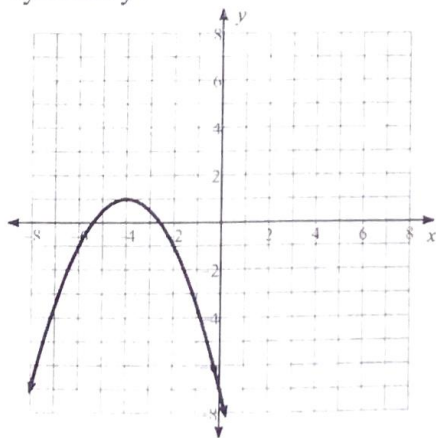
4)



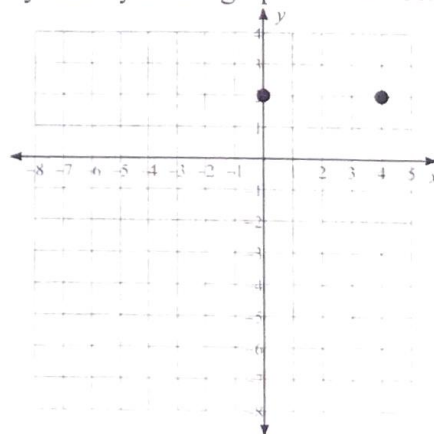
Write the parabola above in factored form.

Answer: $y = (\quad)(\quad)$

5) A quadratic function is shown below. Which equation best represents the axis of symmetry?



6) Two points on the graph of a quadratic function are shown on the grid below. What is the equation for the axis of symmetry of the graph of this function?



7) $y = -x^2 + 2x - 8$

Axis of symmetry:

Vertex:

8) $y = -x^2 - 17$

Axis of symmetry:

Vertex:

- 9) If the graph of the function $y = x^2$ is translated so its vertex is now at the point $(4, 0)$, which equation represents the new function?

- 10) Given $y = \frac{1}{2}(x - 5)^2 + 1$, find the following:

Axis of symmetry:

Vertex:

- 11) Write the equation in standard form and factored form given vertex form below.

$$y = (x - 2)^2 - 9$$

Standard form:

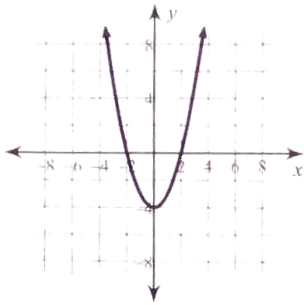
Factored form:

- 12) What is the vertex of the graph of the quadratic function $f(x) = x^2 + 8x + 18$?

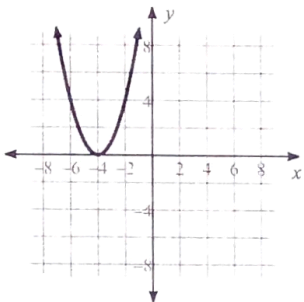
- 13) What is the range of $y = -x^2 - 6x + 14$?

14) Which graph best represents a function with a range of all real numbers less than or equal to -4 ?

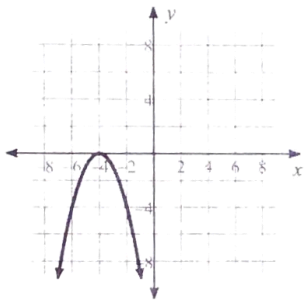
A)



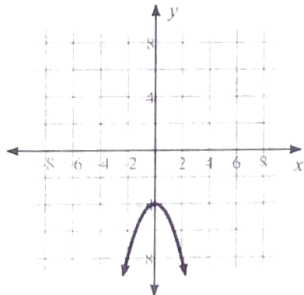
B)



C)



D)



15) The parent function $f(x) = x^2$ is reflected across the x -axis, vertically stretched by a factor of 3, and translated right 7 units to create g . Use the description to write the quadratic function in vertex form.

A) $g(x) = -3(x + 7)^2$

B) $g(x) = -3(x - 7)^2$

C) $g(x) = 7(x + 3)^2$

D) $g(x) = 3(x - 7)^2$

16) Which function includes a translation of 3 units to the left?

- A) $f(x) = (x - 3)^2 + 1$
- B) $f(x) = 3x^2 + 1$
- C) $f(x) = (x + 1)^2 - 3$
- D) $f(x) = (x + 3)^2 + 1$

17) Which equation shows a translation of 3 left and vertical compression by a factor of 2 to the graph of $y = x^2$?

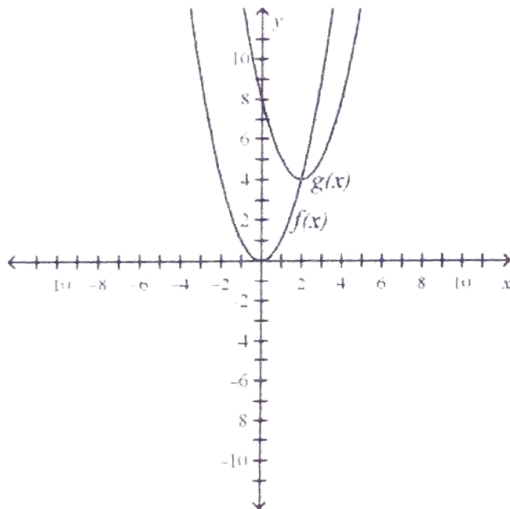
- A) $y = \frac{1}{2}(x - 3)^2$
- B) $y = 2(x - 3)^2$
- C) $y = \frac{1}{2}(x + 3)^2$
- D) $y = 2(x + 3)^2$

18) List the sequence of steps required to graph the function $f(x) = -(x + 4)^2 - 6$

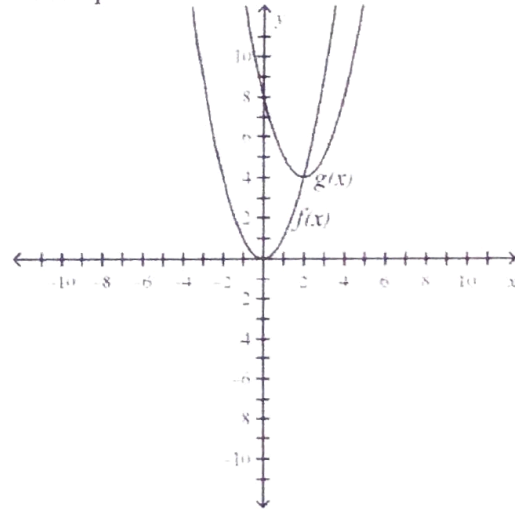
- A) horizontal translation 4 units to the right, vertical compression by a factor of 1, vertical translation 6 units down
- B) horizontal translation 4 units to the left, reflection in x-axis, vertical translation 6 units down
- C) horizontal translation 4 units to the right, reflection in x-axis, vertical translation 6 units down
- D) horizontal translation 4 units to the left, vertical translation 6 units up, reflection in x-axis

Using the graph of $f(x) = x^2$ as a guide, describe the transformations, and then graph the function $g(x) = (x - 2)^2 + 4$.

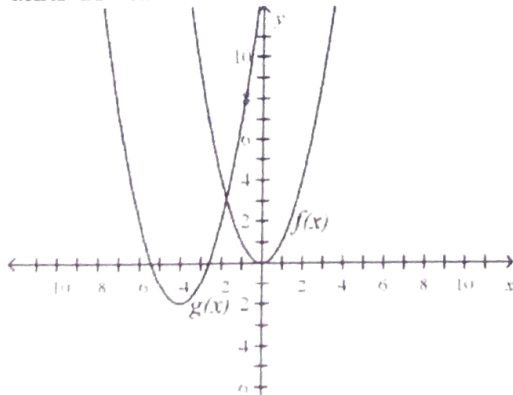
a) $g(x)$ is $f(x)$ translated 2 units left and 4 units down.



c) $g(x)$ is $f(x)$ translated 2 units right and 4 units up.



b) $g(x)$ is $f(x)$ translated 4 units left and 2 units down.



d) $g(x)$ is $f(x)$ translated 4 units right and 2 units up.

