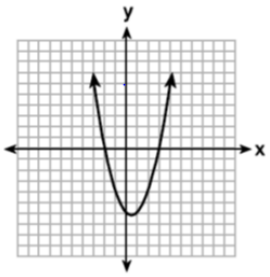
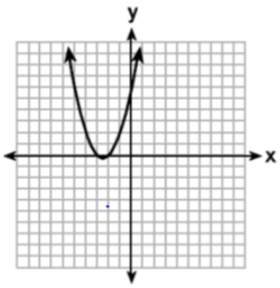
GSE Algebra **Unit 3 Quadratics Review** Name: _____ Block: __

1. The graphs below represent functions defined by polynomials. What are the zeros for the functions?

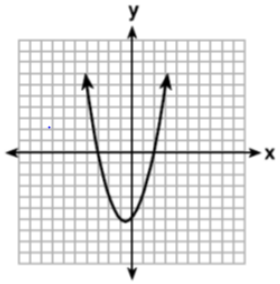
A.



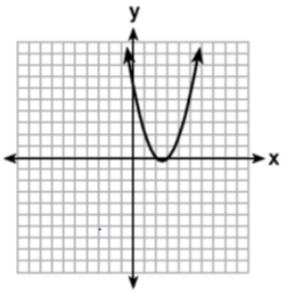
C.



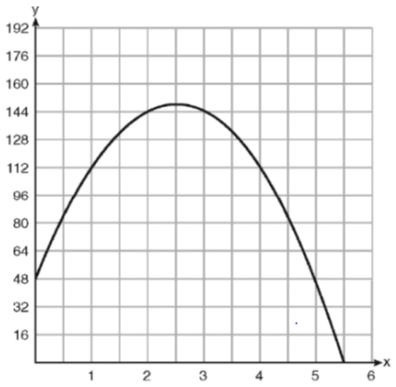
B.



D.



2. A ball is thrown into the air from the edge of a 48-foot-high cliff so that it eventually lands on the ground. The graph below shows the height, y, of the ball from the ground after x seconds.



State the interval of increase.

State the interval of decrease.

3. Given the quadratic function $g(x) = -3(x-2)^2 + 4$, identify the vertex and determine whether it is a minimum or maximum.

4. If $f(x) = x^2$, what is the equation of $g(x)$ if $f(x)$ is translated to the left 3 units and down 2 units?

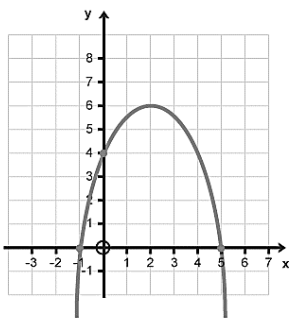
5. What is the end behavior of the graph of $f(x) = -0.25x^2 - 2x + 1$?

As x increases, $f(x)$ _____

As x decreases, $f(x)$ _____

6. Which statement BEST describes how the graph of $g(x) = -3x^2$ compares to the graph of $f(x) = x^2$?

7. This graph shows a function $f(x)$.



a. Domain:

b. Range:

c. Axis of symmetry:

d. Vertex: minimum or maximum.

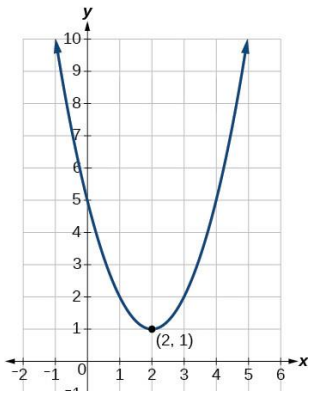
e. Interval of increase:

f. Interval of decrease:

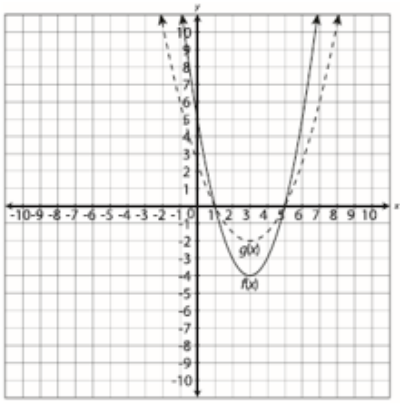
g. x-intercept(s):

h. y-intercept(s):

8. Write the equation of the graph below.



9. Consider the graphs of $f(x)$ and $g(x) = \frac{1}{2} \cdot f(x)$. What is the transformation, including the scale factor?



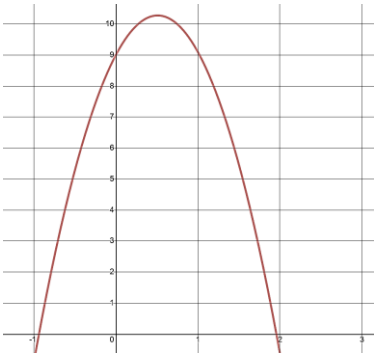
10. The formula for the area of a circle is $A = \pi r^2$. Solve for r.

11. A café's annual income depends on x, the number of customers. The function $I(x) = 4x^2 - 20x$ describes the café's total annual income. The function $C(x) = 2x^2 + 5$ describes the total amount the café spends in a year. The café's annual profit, P(x), is the difference between the annual income and the amount spent in a year.
Which function describes P(x)?

12. Factor $x^2 + 16$

13. Factor $4x^2 + 8x$

14. An object is thrown in the air with an initial velocity of $5\ m/s$ from a height of $9m$. The equation $h(t) = -4.9t^2 + 5t + 9$ models the height of the object in meters after t seconds.



About how many seconds does it take for the object to hit the ground?

15. Factor $x^2 - 11x + 18$.

16. Which expression is not a perfect square trinomial?

A. $x^2 + 12x + 36$

C. $x^2 + 12x - 36$

B. $x^2 - 6x + 9$

D. $x^2 + 6x + 9$

17. Solve $x^2 - 7x + 12 = 0$.

18. Keith determines the zeros of a function to be 5 and -6 . What could be Keith's function?

19. Solve $2x^2 - 5x + 2 = 0$ for x.

A. $x = 0.5$ or $x = 2$

C. $x = 2$

B. $x = 0.5$

D. $x = -0.5$ or $x = 2$

20. Solve: $2(x + 7)^2 - 4 = 68$ for x.

21. Solve: $(x - 9)^2 + 4 = 85$ for x.

22. Solve using any method.

$$x^2 + 20x + 15 = 0$$

23. Solve using any method.

$$9x^2 + 15 = 20$$

24. Solve using any method.

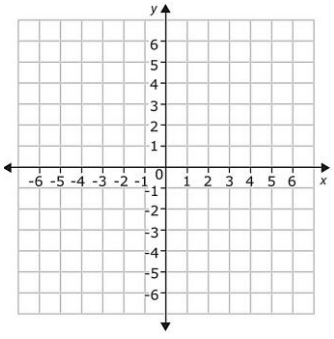
$$3x^2 + 20x + 7 = 0$$

25. Sovle using any method.

$$x^2 + 20x + 19 = 0$$

Graphing the following.

26. $y = -2(x - 2)^2 + 3$



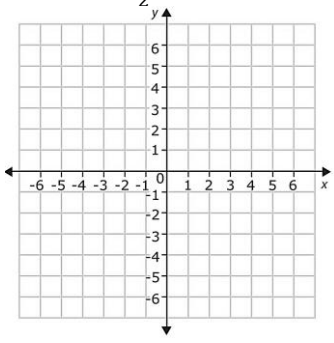
Vertex:

Axis of Symmetry:

Domain:

Range:

27. f(x) $= \frac{1}{2}(x + 2)^2 - 4$



Vertex:

Axis of Symmetry:

Domain:

Range: