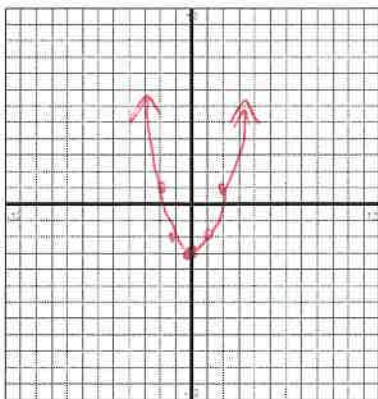


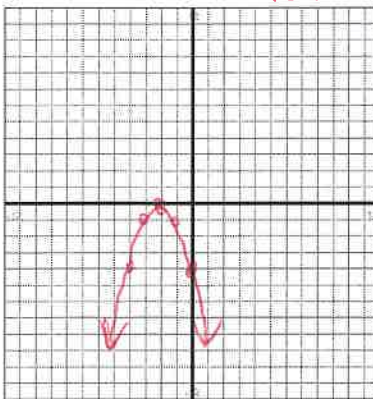
Quiz 2.1-2.2 B Review 2

Describe the transformations of $f(x) = x^2$ represented by g . Then graph each function.

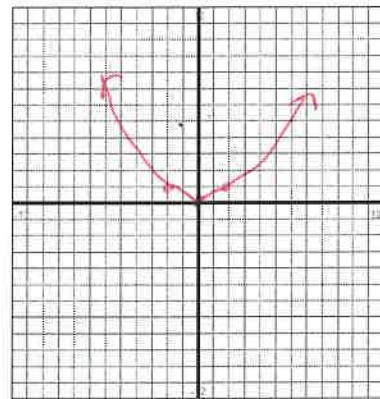
1. $g(x) = x^2 - 3$ *Down 3*



2. $g(x) = -(x + 2)^2$ *Left 2 Reflection*



3. $g(x) = \frac{1}{2}x^2$ *V. Shrink 1/2*



Write a rule for g described by the transformations of the graph of f . Then identify the vertex.

4. $f(x) = x^2$; vertical stretch by a factor of 2 and a reflections in the x -axis, followed by a translation 1 unit down.

*$f(x) = x^2$
 $g(x) = 2x^2$
 $g(x) = -2x^2$
 $g(x) = -2x^2 - 1$*

5. $f(x) = x^2$; translation 4 units up followed by a vertical shrink by a factor of $\frac{1}{2}$.

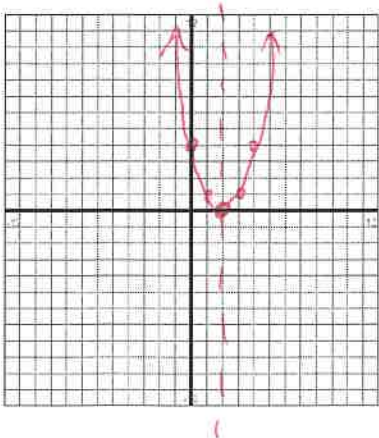
*$f(x) = x^2$
 $g(x) = x^2 + 4$
 $g(x) = \frac{1}{2}x^2 + 2$*

Graph the function. Label the vertex and the axis of symmetry.

6. $f(x) = (x - 2)^2$

Vertex: (2, 0)

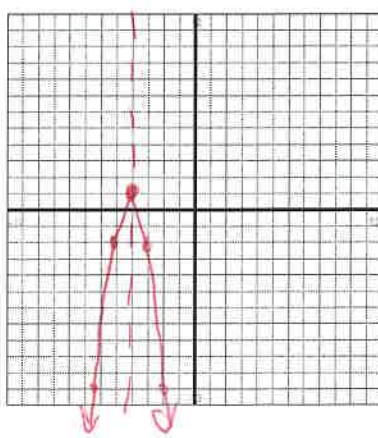
Axis of Symmetry: $x = 2$



7. $y = -3(x + 4)^2 + 1$

Vertex: (-4, 1)

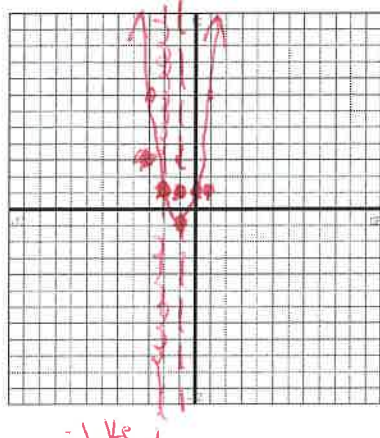
Axis of Symmetry: $x = -4$



8. $g(x) = 2x^2 + 4x + 1$ *$x = \frac{-b}{2a} = \frac{-4}{4} = -1$*

Vertex: (-1, -1)

Axis of Symmetry: $x = -1$



mistake

Find the minimum value or maximum value of the function. Find the domain and range of the function, and when the function is increasing and decreasing.

9. $y = -(x - 4)^2 + 15$

$(4, 15)$

Max = 15 D: \mathbb{R} R: $y \leq 15$

inc: $x < 4$ dec: $x > 4$

10. $k(x) = 5x^2 + 3$

$x = \frac{-b}{2a} = \frac{0}{10} = 0$

$(0, 3)$

Min = 3 D: \mathbb{R} R: $y \geq 3$

dec: $x < 0$ inc: $x > 0$

11. $h(x) = -6x^2 + 18x - 2$

$x = \frac{-b}{2a} = \frac{-18}{-12} = \frac{3}{2}$

$(\frac{3}{2}, \frac{23}{2})$ or $(1.5, 11.5)$

Max = $\frac{23}{2}$ D: \mathbb{R} R: $y \leq \frac{23}{2}$

inc: $x < \frac{3}{2}$ dec: $x > \frac{3}{2}$

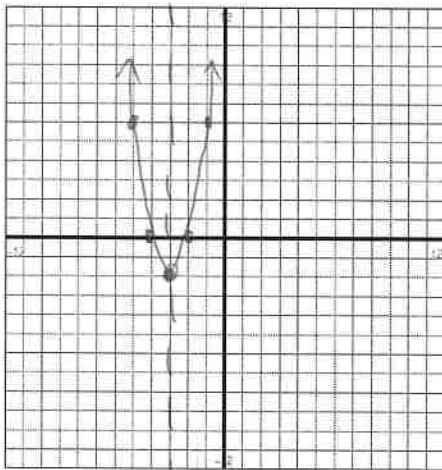
Graph the function. Label the x-intercept(s), vertex and axis of symmetry.

12. $f(x) = 2(x + 2)(x + 4)$

x-intercept(s): $(-2, 0) (-4, 0)$

Vertex: $(-3, -2)$

Axis of Symmetry: $x = -3$

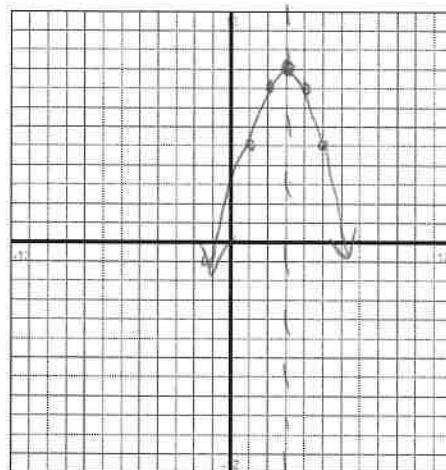


13. $f(x) = -x(x - 6)$

x-intercept(s): $(0, 0) (6, 0)$

Vertex: $(3, 9)$

Axis of Symmetry: $x = 3$



14. The height in feet of a projectile with an initial velocity of 64 feet per second and an initial height of 80 feet is a function of time t in seconds given by, $h(t) = -16t^2 + 64t + 80$. $V: (2, 144)$

a) When does the projectile reach the maximum height? Graph Calc, T-chart: 2 seconds

b) What is the maximum height of the projectile? 144 feet

c) What is the start height of the projectile? 80 feet: $(0, 80)$