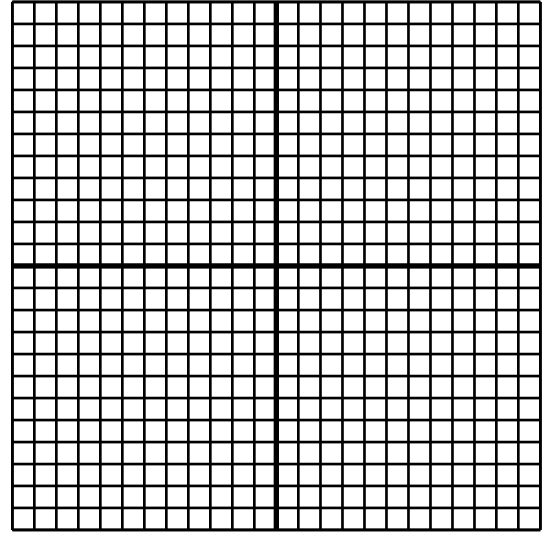


# 1<sup>st</sup> Semester Test Study Guide: Chapter 5

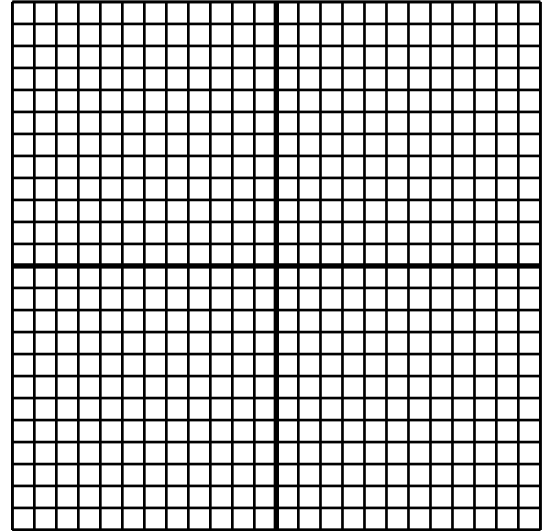
Name: \_\_\_\_\_

**Directions:** Find the vertex for each parabola, describe the transformation, and then graph the function.

1.  $f(x) = 2(x+5)^2 - 4$



2.  $f(x) = -\frac{1}{4}(x-3)^2 + 9$



**Directions:** Find the vertex for each parabola. **Show all work.**

3.  $f(x) = x^2 + 6x + 5$

4.  $f(x) = -2x^2 + 8x + 13$

**Directions:** Find the roots of each quadratic function by the method of your choice. **Show all work.**

5.  $f(x) = x^2 - 10x - 8$

6.  $f(x) = 4x^2 - 144$

7.  $f(x) = 2x^2 - 13x + 20$

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

9.  $f(x) = x^2 - 6x - 20$

10.  $f(x) = 5x^2 - 4x + 8$

11.  $f(x) = 3x^2 + 6x - 96$

12.  $f(x) = x^2 + 4x - 60$

**Directions:** Solve each word problem. Round all decimals to the nearest hundredth. Show all work. Answer the question in a complete sentence. **Show all work.**

**Use the formula below to help you set up the equations.**

$$h(t) = -\frac{1}{2}gt^2 + v_i t + h_i$$

$h(t)$  = height of object at  $t$   
seconds

$g$  = gravity (9.8 meters/sec<sup>2</sup>)  
(32 feet/sec<sup>2</sup>)

$t$  = time (in seconds)

$v_i$  = initial velocity

$h_i$  = initial height of object

13. A ball was thrown up with an initial vertical velocity of 15.5 meters per second with an initial height of 2 meters. When will it hit the ground?

14. A golf ball on the ground is hit with an upward velocity of 34.6 feet per second. When will it hit the ground?

15. A ball was thrown up with a vertical rate of 17.6 meters per second with an initial height of 1.5 meters. When will it be 16 meters above the ground?

**Directions:** Add, subtract, multiply or divide each set of complex numbers. **Show all work.**

16.  $(5 - 2i) + (4 + 3i)$

17.  $(-8 - 4i) - (2 + i)$

18.  $(1 - 4i)(2 + 3i)$

19.  $(-5 + 2i)(4 - 7i)$

20.  $\frac{7 - 2i}{4 + 3i}$

21.  $\frac{-1 + 3i}{4 + i}$