

Quadratics Unit Test Review

Name: _____

Directions: Answer each question completely. Show ALL of your work!!!!

1) How does each differ from the parent function for quadratics? **Do NOT use a calculator!**

a. $f(x) = -2x^2 + 4$ _____

b. $f(x) = (x + 3)^2 - 10$ _____

2) Graph each function. Show your work!!!! **Do NOT use a calculator!**

a. $f(x) \geq 2x^2 - 4x - 5$

b. $f(x) < -(x + 4)^2 + 2$

Vertex: _____

Vertex: _____

Axis of Symmetry: _____

Axis of Symmetry: _____

Y-intercept: _____

Point: _____

Point: _____

Point: _____

Min/Max: _____

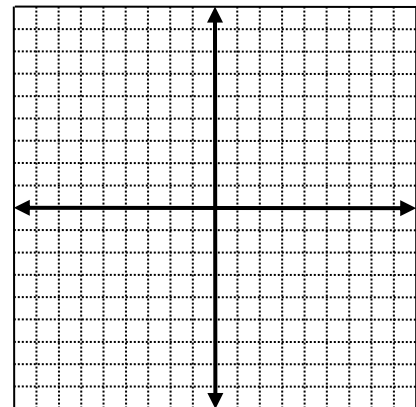
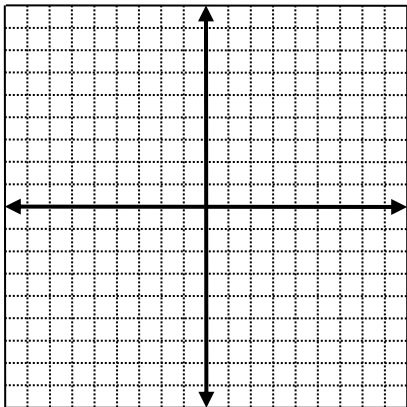
Min/Max: _____

Domain: _____

Domain: _____

Range: _____

Range: _____



3) Rewrite the following equation in vertex form. $f(x) = -4x^2 + 16x - 12$ _____

4) Solve using **SQUARE ROOTS**. Leave answers in simplest radical terms if necessary.

a. $x^2 - 4 = 5$ _____

b. $4(x - 7)^2 = 784$ _____

c. $5x^2 + 25 = 0$ _____

d. $3(x + 10)^2 = -243$ _____

e. $5x^2 + 18 = -117$ _____

f. $(x + 4)^2 + 6 = 51$ _____

5) Solve by **FACTORING**.

a. $x^2 - 3x = 40$ _____

b. $2x^2 + 27 = -21x$ _____

c. $72x^2 - 32x = 0$ _____

d. $2x^2 = 5x + 3$ _____

e. $3x^2 + 6x = 72$ _____

f. $4x^3 - 140 = 8x^2$ _____

6) Find the number of solutions of each equation. Show your work!!!!

a. $x^2 + 10x + 6 = 0$ _____

b. $-9x^2 - 25x + 20 = 0$ _____

c. $-3x^2 + 27x = -40$ _____

d. $0 = -4x^2 - 5x - 2$ _____

7) Solve each equation using the **QUADRATIC FORMULA**. Keep answers in radical form.

a. $x^2 - 18x - 24 = 0$ _____

b. $-x^2 + 8x + 4 = 5$ _____

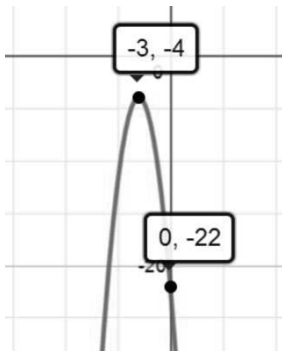
c. $2x^2 + 3 = 7x$ _____

d. $-2x = 3x^2 + 1$ _____

e. $2x^2 + 8x - 2 = x^2 + 2x - 8$ _____

8) A ball follows the path of $h = -16t^2 + 40t$. Will it ever reach the height of 28 feet? _____

9) Write the equation in vertex form for the following graph



10) Suppose you throw a ball in the air with an upward velocity of 30 ft/sec. The ball is 4 feet high when it leaves your hand. Use the equation $h = -16t^2 + 30t + 4$ to find the following. Do NOT round your answers.

a. How long does it take the ball to reach its maximum height? _____

b. What is the maximum height of the ball? _____

c. How long is the ball in the air? _____