

Quadratic Quiz Review

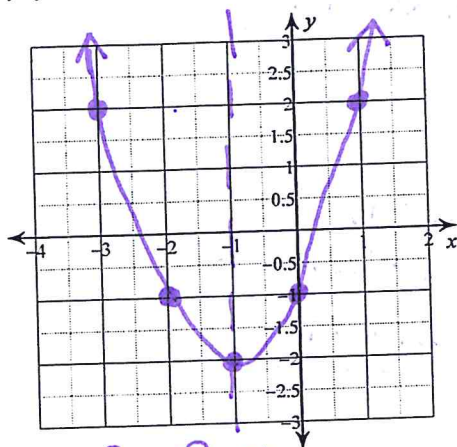
Name _____

I can graph in standard form.

1) $y = x^2 + 2x - 1$

Vertex:
 $(-1, -2)$

x	y
0	-1
1	2



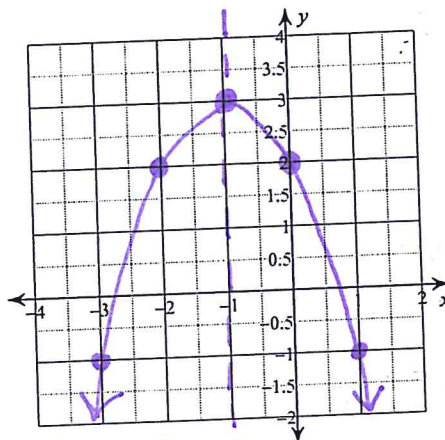
$$x = \frac{-a}{2a} = \frac{-2}{2} = -1$$

$$y = (-1)^2 + 2(-1) - 1 = -2$$

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

Vertex:
 $(-1, 3)$

x	y
0	2
1	-1



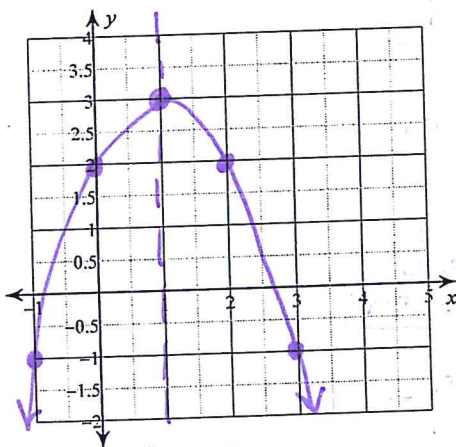
$$x = \frac{-(-2)}{2(-1)} = \frac{2}{-2} = -1$$

$$y = -(-1)^2 - 2(-1) + 2 = 3$$

3) $y = -x^2 + 2x + 2$

Vertex:
 $(1, 3)$

x	y
2	2
3	-1



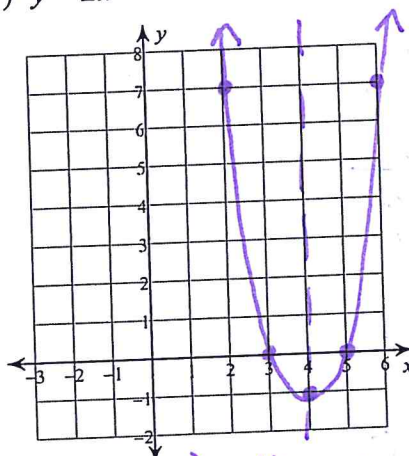
$$x = \frac{-(-2)}{2(-1)} = \frac{2}{-2} = -1$$

$$y = -(-1)^2 + 2(-1) + 2 = 3$$

4) $y = 2x^2 - 16x + 31$

Vertex:
 $(4, -1)$

x	y
5	1
6	7



$$x = \frac{-(-16)}{2(2)} = \frac{16}{4} = 4$$

$$y = 2(4)^2 - 16(4) + 31 = -1$$

I can convert from vertex form to standard form

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

$$(2x - 8)(x - 4) + 1$$

$$2x^2 - 8x - 8x + 32 + 1$$

$$2x^2 - 16x + 33$$

6) $y = -(x + 1)^2 + 4$

$$(-x - 1)(x + 1) + 4$$

$$-x^2 - x - x - 1 + 4$$

$$-x^2 - 2x + 3$$

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

$$\begin{aligned} &(-x-2)(x+2)+1 \\ &-x^2-2x-2x-4+1 \\ &\boxed{-x^2-4x-3} \end{aligned}$$

$$8) y = 2(x-3)^2 - 1$$

$$\begin{aligned} &(2x-6)(x-3)-1 \\ &2x^2-6x-6x+18-1 \\ &\boxed{2x^2-12x+17} \end{aligned}$$

$$9) y = -(x-1)^2 + 3$$

$$\begin{aligned} &(-x+1)(x-1)+3 \\ &-x^2+x+x-1+3 \\ &\boxed{-x^2+2x+2} \end{aligned}$$

$$10) y = 2(x-4)^2 - 3$$

$$\begin{aligned} &(2x-8)(x-4)-3 \\ &2x^2-8x-8x+32-3 \\ &\boxed{2x^2-16x+29} \end{aligned}$$

I can solve quadratics by taking square roots.

$$11) -2x^2 = -128$$

$$\begin{aligned} &\frac{-2}{-2} \quad \frac{-128}{-2} \\ &\sqrt{x^2} = \sqrt{64} \\ &\boxed{x = \pm 8} \end{aligned}$$

$$12) x^2 - 5 = 44$$

$$\begin{aligned} &\quad +5 \quad +5 \\ &\sqrt{x^2} = \sqrt{49} \\ &\boxed{x = \pm 7} \end{aligned}$$

$$13) 7p^2 - 4 = 563$$

$$\begin{aligned} &\quad +4 \quad +4 \\ &\frac{7p^2}{7} = \frac{567}{7} \\ &\sqrt{p^2} = \sqrt{81} \\ &\boxed{p = \pm 9} \end{aligned}$$

$$14) 3a^2 - 4 = 44$$

$$\begin{aligned} &\quad +4 \quad +4 \\ &\frac{3a^2}{3} = \frac{48}{3} \\ &\sqrt{a^2} = \sqrt{16} \\ &\boxed{a = \pm 4} \end{aligned}$$

$$15) n^2 - 7 = 42$$

$$\begin{aligned} &\quad +7 \quad +7 \\ &\sqrt{n^2} = \sqrt{49} \\ &\boxed{n = \pm 7} \end{aligned}$$

$$16) a^2 - 3 = 22$$

$$\begin{aligned} &\quad +3 \quad +3 \\ &\sqrt{a^2} = \sqrt{25} \\ &\boxed{a = \pm 5} \end{aligned}$$

$$17) x^2 + 5 = 30$$

$$\begin{aligned} &\quad -5 \quad -5 \\ &\sqrt{x^2} = \sqrt{25} \\ &\boxed{x = \pm 5} \end{aligned}$$

$$18) x^2 + 5 = 86$$

$$\begin{aligned} &\quad -5 \quad -5 \\ &\sqrt{x^2} = \sqrt{81} \\ &\boxed{x = \pm 9} \end{aligned}$$

$$19) 10r^2 - 7 = 353$$

$$\begin{aligned} &\quad +7 \quad +7 \\ &\frac{10r^2}{10} = \frac{360}{10} \\ &\sqrt{r^2} = \sqrt{36} \\ &\boxed{r = \pm 6} \end{aligned}$$

$$20) 3v^2 + 9 = 117$$

$$\begin{aligned} &\quad -9 \quad -9 \\ &\frac{3v^2}{3} = \frac{108}{3} \\ &\sqrt{v^2} = \sqrt{36} \\ &\boxed{v = \pm 6} \end{aligned}$$

$$21) 5n^2 + 7 = 27$$

$$\begin{array}{r} -7 \quad -7 \\ \hline 5n^2 = 20 \\ \hline 5 \quad 5 \\ \sqrt{n^2 = 4} \\ \boxed{n = \pm 2} \end{array}$$

I can solve quadratics by factoring.

$$23) m^2 - m - 12 = 0$$

$$\begin{array}{l} (m+3)(m+4) \\ m+3=0 \quad m+4=0 \\ \begin{array}{r} -3 \quad -3 \\ \hline \boxed{m = -3} \end{array} \quad \begin{array}{r} +4 \quad +4 \\ \hline \boxed{m = 4} \end{array} \end{array}$$

$$25) n^2 - n - 42 = 0$$

$$\begin{array}{l} (n-7)(n+6) \\ n-7=0 \quad n+6=0 \\ \begin{array}{r} +7 \quad +7 \\ \hline \boxed{n = 7} \end{array} \quad \begin{array}{r} -6 \quad -6 \\ \hline \boxed{n = -6} \end{array} \end{array}$$

$$27) x^2 - x - 56 = 0$$

$$\begin{array}{l} (x-8)(x+7) \\ x-8=0 \quad x+7=0 \\ \begin{array}{r} +8 \quad +8 \\ \hline \boxed{x = 8} \end{array} \quad \begin{array}{r} -7 \quad -7 \\ \hline \boxed{x = -7} \end{array} \end{array}$$

$$29) n^2 - n - 30 = 0$$

$$\begin{array}{l} (n-6)(n+5) \\ n-6=0 \quad n+5=0 \\ \begin{array}{r} +6 \quad +6 \\ \hline \boxed{n = 6} \end{array} \quad \begin{array}{r} -5 \quad -5 \\ \hline \boxed{n = -5} \end{array} \end{array}$$

$$31) x^2 + 3x + 2 = 0$$

$$\begin{array}{l} (x+2)(x+1) \\ x+2=0 \quad x+1=0 \\ \begin{array}{r} -2 \quad -2 \\ \hline \boxed{x = -2} \end{array} \quad \begin{array}{r} -1 \quad -1 \\ \hline \boxed{x = -1} \end{array} \end{array}$$

$$22) 9x^2 - 1 = 575$$

$$\begin{array}{r} +1 \quad +1 \\ \hline 9x^2 = 576 \\ \hline 9 \quad 9 \\ \sqrt{x^2 = 64} \\ \boxed{x = \pm 8} \end{array}$$

$$24) n^2 + 3n + 2 = 0$$

$$\begin{array}{l} (n+2)(n+1) \\ n+2=0 \quad n+1=0 \\ \begin{array}{r} -2 \quad -2 \\ \hline \boxed{n = -2} \end{array} \quad \begin{array}{r} -1 \quad -1 \\ \hline \boxed{n = -1} \end{array} \end{array}$$

$$26) k^2 + 2k - 48 = 0$$

$$\begin{array}{l} (k+8)(k-6) \\ k+8=0 \quad k-6=0 \\ \begin{array}{r} -8 \quad -8 \\ \hline \boxed{k = -8} \end{array} \quad \begin{array}{r} +6 \quad +6 \\ \hline \boxed{k = 6} \end{array} \end{array}$$

$$28) n^2 - 12n + 35 = 0$$

$$\begin{array}{l} (x-5)(x-7) \\ x-5=0 \quad x-7=0 \\ \begin{array}{r} +5 \quad +5 \\ \hline \boxed{x = 5} \end{array} \quad \begin{array}{r} +7 \quad +7 \\ \hline \boxed{x = 7} \end{array} \end{array}$$

$$30) k^2 - 6k + 8 = 0$$

$$\begin{array}{l} (k-2)(k-4) \\ k-2=0 \quad k-4=0 \\ \begin{array}{r} +2 \quad +2 \\ \hline \boxed{k = 2} \end{array} \quad \begin{array}{r} +4 \quad +4 \\ \hline \boxed{k = 4} \end{array} \end{array}$$

$$32) x^2 - 6x + 5 = 0$$

$$\begin{array}{l} (x-5)(x-1) \\ x-5=0 \quad x-1=0 \\ \begin{array}{r} +5 \quad +5 \\ \hline \boxed{x = 5} \end{array} \quad \begin{array}{r} +1 \quad +1 \\ \hline \boxed{x = 1} \end{array} \end{array}$$

