

Starter:

1. $x^2 - 16$

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

2. $3x^2 - 27$

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

3. $\frac{4n^2}{2} - \frac{22n}{2} + \frac{24}{2}$

$$\begin{array}{cc} 24 & -8 \\ -3 & -11 \end{array}$$

$$2(2n^2 - 11n + 12)$$

$$\downarrow$$

$$2(2n - 3)\left(\frac{2n}{2} - \frac{8}{2}\right)$$

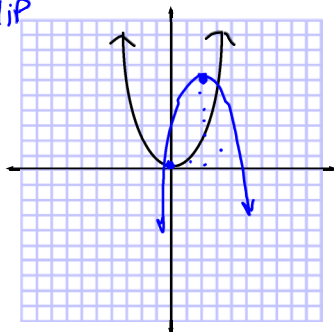
$$2(2n - 3)(n - 4)$$

Calendar Math

Given the equation, graph the transformation

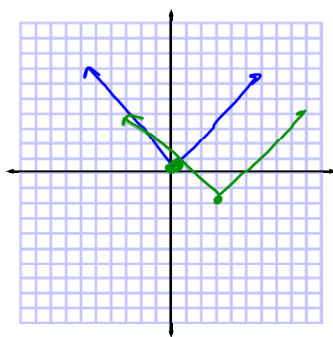
Ex 1: $y = -(x - 2)^2 + 6$

2 units right
6 units up
- flip



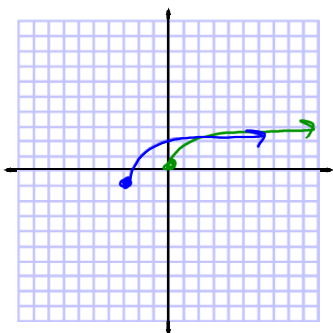
Parent graph

Ex 2: $y = |x - 3| - 2$



3 units right
2 units down

Ex 3: $y = \sqrt{x + 3} - 1$



3 units left
-1 unit down

Solve by factoring 1.5

$$(x + 2)(x - 3) = 0$$

$$\begin{array}{l} x + 2 = 0 \\ -2 \quad -2 \\ \hline x = -2 \end{array}$$

$$\begin{array}{l} x - 3 = 0 \\ +3 \quad +3 \\ \hline x = 3 \end{array}$$

$$(3x - 5)(2x + 3) = 0$$

$$\begin{array}{l} 3x - 5 = 0 \\ +5 \quad +5 \\ \hline 3x = 5 \\ \frac{3}{3} \quad \frac{5}{3} \\ \hline x = \frac{5}{3} \end{array}$$

$$\begin{array}{l} 2x + 3 = 0 \\ -3 \quad -3 \\ \hline 2x = -3 \\ \frac{2}{2} \quad \frac{-3}{2} \\ \hline x = -\frac{3}{2} \end{array}$$

$$1. \quad | \quad r^2 + 4r - 12 = 0$$

$$(r + 6)(r - 2) = 0$$

$$\begin{array}{r} r + 6 = 0 \\ -6 \quad -6 \\ \hline \boxed{r = -6} \end{array}$$

$$\begin{array}{r} r - 2 = 0 \\ +2 \quad +2 \\ \hline \boxed{r = 2} \end{array}$$

~~$$\begin{array}{r} -12 \\ 6 \quad -2 \\ \hline 4 \end{array}$$~~

$$5. \quad x^2 + 48 = -14x$$

\uparrow
 $+14x$ $+14x$

$$x^2 + 14x + 48 = 0$$

$$(x + 6)(x + 8) = 0$$

$$x + 6 = 0$$

$$\begin{array}{r} -6 \quad -6 \\ \hline \boxed{x = -6} \end{array}$$

$$x + 8 = 0$$

$$\begin{array}{r} -8 \quad -8 \\ \hline \boxed{x = -8} \end{array}$$

~~$$\begin{array}{r} 48 \\ 6 \quad 8 \\ \hline 14 \end{array}$$~~

$$7. \quad 2r^2 + 2r - 7 = -3r + r^2 - 1$$

$$-r^2 + 3r + 1 \quad +3r - r^2 + 1$$

$$\textcircled{p} \quad r^2 + 5r - 6 = 0$$

$$(r - 1)(r + 6) = 0$$

~~$$\begin{array}{r} -6 \\ -1 \quad 6 \\ \hline 5 \end{array}$$~~

$$\begin{array}{r} r - 1 = 0 \\ +1 \quad +1 \\ \hline r = 1 \end{array}$$

$$\begin{array}{r} r + 6 = 0 \\ -6 \quad -6 \\ \hline r = -6 \end{array}$$

$$9. \frac{7n^2}{n} - \frac{2n}{n} = 0$$

$$n(7n - 2) = 0$$
$$\boxed{n = 0}$$

$$7n - 2 = 0$$
$$\begin{array}{r} +2 \quad +2 \\ \hline 7n = 2 \\ \frac{7n}{7} = \frac{2}{7} \\ \hline \boxed{n = \frac{2}{7}} \end{array}$$

$$11. \quad 15k^2 + 28k + 4 = -8$$

$$\frac{\quad \quad \quad +8 \quad \quad +8}{15k^2 + 28k + 12 = 0}$$

$$(15k + 18)(15k + 10)$$

$$(5k + 6)(3k + 2) = 0$$

$$\begin{array}{r} 180 \\ 18 \times 10 \\ 28 \end{array}$$

$$5k + 6 = 0$$

$$\frac{-6 \quad -6}{5k = -6}$$

$$k = -\frac{6}{5}$$

$$3k + 2 = 0$$

$$\frac{-2 \quad -2}{3k = -2}$$

$$k = -\frac{2}{3}$$

