

Algebra 1 8.6

Factor trinomials

Solve quadratic equations by factoring
quadratic

EWE

Factor

Solve Zero product property

activity: x-factor

whiteboards

$$x^2 + 12x + 32$$

~~$$\begin{array}{r} 32 \\ 4 \quad 8 \\ 12 \end{array}$$~~

$$\begin{array}{r} 1 \quad 32 \\ 2 \quad 16 \\ 4 \quad 8 \end{array}$$

$$(x+4)(x+8)$$

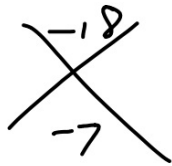
Example 3 c is Negative

Factor each polynomial.

→ a. $x^2 + 2x - 15$

$$\begin{array}{r} \begin{array}{c} -15 \\ +5 \end{array} \begin{array}{c} 2 \\ 2 \end{array} \begin{array}{c} -3 \\ -3 \end{array} \\ \hline \end{array} \quad \begin{array}{r} 1 \ 15 \\ 3 \ 5 \end{array} \quad (x+5)(x-3)$$

b. $x^2 - 7x - 18$



$$(x-9) \cdot (x+2)$$

$$(x+2)(x-9)$$

Guided Practice

3A. $y^2 + 13y - 48$



3B. $r^2 - 2r - 24$

$(\quad)(\quad)$

Zero product property:

$$\begin{pmatrix} \\ \downarrow \end{pmatrix} \cdot \begin{pmatrix} \\ \downarrow \end{pmatrix} = 0$$

Solve

~~6~~
~~3~~ ~~2~~
~~5~~

$$X^2 + 5X + 6 = 0$$

$$\rightarrow (X+3) \cdot (X+2) = 0$$

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

$$X^2 - 9X + 20 = 0$$

$$(X-4)(X-5) = 0$$

$$\begin{array}{rcl} \downarrow & & \downarrow \\ X-4=0 & & X-5=0 \\ +4 \quad +4 & & +5 \quad +5 \\ \hline X=4 & & X=5 \end{array}$$

$$a^2 + 12a + 20$$

$$(a+10)(a+2)$$

$$x^2 + 5x = 6$$

$\begin{matrix} -6 & -6 \end{matrix}$

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

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

$$x-1=0$$

$$\begin{matrix} +1 & +1 \\ \hline x=1 \end{matrix}$$

$$x+6=0$$

$$\begin{matrix} -6 & -6 \\ \hline x=-6 \end{matrix}$$

$$\begin{array}{cc} & -6 \\ -1 & \times & +6 \\ & 5 \end{array}$$