

Algebra 1 8.5

Use the distributive property to factor polynomials

Solve quadratic equations by factoring

quadratic

factor

distributive property

greatest common factor (GCF)

zero product property

whiteboards

$$3x + 15$$

## Guided Practice

1A.  $15w - 3v$

$$\begin{array}{l} 15w - 3v \\ \cancel{3} \cdot 5w - \cancel{3}v \\ 3(5w - v) \end{array}$$

What is GCF?

What is leftover?

Backwards distributive property

$$\begin{array}{l} 35x^2 + 7xy \\ \cancel{5} \cdot \cancel{7} \cdot xx + \cancel{7} \cdot y \\ 7x(5x + y) \end{array}$$

1. write out factors
2. In everything
3.  $\div$  out
4. left over

b.  $-4a^2b - 8ab^2 + 2ab$

$$-1 \cdot 2 \cdot 2 \cdot \cancel{a} \cancel{b} \quad -1 \cdot 2 \cdot 2 \cdot 2 \cdot \cancel{a} \cancel{b} \quad + 1 \cdot \cancel{2} \cdot \cancel{a} \cancel{b}$$
  
$$\underline{2ab} (-2a - 4b + 1)$$

What is the GCF?

\*  $-4a^2b - 8ab^2 + 2ab$

Factor

1B.  $7u^2t^2 + 21ut^2 - ut$

$$\frac{7\cancel{u}t^2}{\cancel{u}} + \frac{3 \cdot 7\cancel{u}t^2}{\cancel{u}} - \frac{\cancel{u}t}{\cancel{u}}$$

$$ut (7ut + 21t - 1)$$

#### Example 4 Solve Equations

Solve each equation. Check your solutions.

a.  $(2d + 6)(3d - 15) = 0$

$$\begin{array}{r} \downarrow \qquad \qquad \downarrow \\ 2d + 6 = 0 \qquad 3d - 15 = 0 \\ \underline{-6 \quad -6} \qquad \underline{+15 \quad +15} \\ 2d = -6 \qquad 3d = 15 \\ \underline{\quad 2} \qquad \underline{\quad 3} \\ d = -3 \qquad d = 5 \end{array}$$

Guided Practice

4A.  $3n(n + 2) = 0$

$$\begin{array}{r} \downarrow \qquad \downarrow \\ 3n = 0 \qquad n + 2 = 0 \\ \hline \frac{3n}{3} = \frac{0}{3} \qquad \frac{n + 2}{-2} = \frac{0}{-2} \\ \hline n = 0 \qquad n = -2 \end{array}$$

$( \quad ) \cdot ( \quad ) = 0$

**4B.**  $8b^2 - 40b = 0$

must be in factored form...  
= 0

**b.**  $c^2 = 3c$



**4C.**  $x^2 = -10x$

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