Algebra 1 8.5

Use the distributive property to factor polynomials

Solve quadratic equations by factoring

quadratic

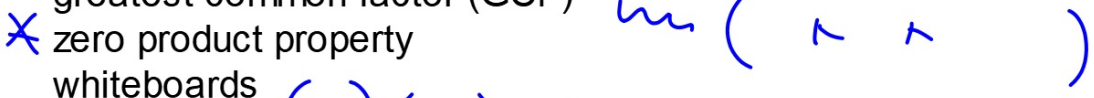
factor

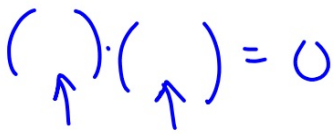
distributive property

greatest common factor (GCF)

zero product property

whiteboards





Factor each polynomial.

3A. $c - 2cd + 8d - 4$

$c(1-2d) + -4(-2d+1)$

$(1-2d)(c-4)$

$2x^3+8x^2+12x$

$2x(x^2+4x+6)$

$2x \cdot x^2 \quad 2x \cdot 4x \quad 2x \cdot 6$

$2x^3 \quad 8x^2 \quad 12x$

3B. $3p - 2p^2 - 18p + 27$

$p(3-2p) + 9(-2p+3)$

$(3-2p)(p+9)$

( )·( ) = 0

KeyConcept Zero Product Property

Words	If the product of two factors is 0, then at least one of the factors must be 0.
Symbols	For any real numbers a and b, if $ab = 0$, then $a = 0$, $b = 0$, or both a and b equal zero.

Example 4 Solve Equations

Solve each equation. Check your solutions.

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

$2d+6=0$
$-6\ \ -6$
$\frac{2d}{2} = \frac{-6}{2}$
$d = -3$

$3d-15=0$
$+15\ +15$
$\frac{3d}{3} = \frac{15}{3}$
$d = 5$

$(10+6)(15-15)=0$
$16 \cdot 0 = 0$

$(-6+6)(-18-15)=0$
$0 \cdot 33 = 0$

GuidedPractice

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

$3n = 0$ or $n + 2 = 0$

$\frac{3n}{3} = \frac{0}{3}$ $\quad -2 \quad -2$

$n = 0$ $\quad n = -2$

$x^2 + 3x = 0$

$x \cdot x \quad 3 \cdot x$

$x(x + 3) = 0$

$x = 0$ $\quad x + 3 = 0$

$x = -3$

must=0 to factor

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

$\frac{8b}{8b} \quad \frac{40b}{8b}$

$8b(b - 5) = 0$

$8b = 0 \qquad b - 5 = 0$

$\frac{8b}{8} = \frac{0}{8} \qquad +5 \quad +5$

$b = 0 \qquad b = 5$

Solve

b. $c^2 = 3c$

$-3c \quad -3c$

$c^2 - 3c = 0$

$c(c-3) = 0$

$c = 0 \quad c - 3 = 0$

$c = 3$

Must =0 to factor

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

WB skills
8.5 ~~odds~~