Algebra 1 8.2

Multiply a polynomial by a monomial

Solve equations involving the product of a monomial and a polynomial

monomial

polynomial $5n(2x + 3a)$

distributive property

like terms $5n \cdot 2x + 5n \cdot 3a$

Whiteboards

5 in a row (if time) $10nx + 15an$

Example 2 Simplify Expressions

Simplify $2p(-4p^2 + 5p) + -5(2p^2 + 20)$.

$2p \cdot -4p^2 + 2p \cdot 5p + -5 \cdot 2p^2 + -5 \cdot 20$

$-8p^3 + 10p^2 + -10p^2 + -100$

$-8p^3 + -100$

$-8p^3 - 100$

Distributive property
Combine like terms

Simplify each expression.

2A. $3(5x^2 + 2x - 4) + -1x(7x^2 + 2x - 3)$

$3 \cdot 5x^2 + 3 \cdot 2x + 3 \cdot -4 + -1x \cdot 7x^2 + -1x \cdot 2x + -1x \cdot -3$

$15x^2 + 6x + -12 + -7x^3 - 2x^2 + 3x$

$-7x^3 + 13x^2 + 9x + -12$

2B. $15t(10y^3t^5 + 5y^2t) + 2y(yt^2 + 4y^2)$

$150y^3t^6 + 75y^2t^2 - 2y^2t^2 - 8y^3$

$150y^3t^6 + 73y^2t^2 - 8y^3$

Solve means x=

100 = 100

32 + 60 + 8 = 18 + 32 + 50

4(8) + 6(10) + 8 = 2(9) + 4(8) + 50

Example 4 Equations with Polynomials on Both Sides

Solve $2a(5a - 2) + 3a(2a + 6) + 8 = a(4a + 1) + 2a(6a - 4) + 50.$

$2a \cdot 5a + 2a \cdot -2 + 3a \cdot 2a + 3a \cdot 6 = a \cdot 4a + a \cdot 1 + 2a \cdot 6a + 2a \cdot -4$

$10a^2 + -4a + 6a^2 + 18a + 8 = 4a^2 + a + 12a^2 - 8a + 50$

$16a^2 + 14a + 8 = 16a^2 - 7a + 50$

$-16a^2 \quad +7a \quad -8 \quad -16a^2 \quad +7a \quad -8$

$21a = 42$

$\frac{21a}{21} = \frac{42}{21}$

$a = 2$

Distributive property ✓
Like terms ✓
Zero pairs ✓
x=

GuidedPractice

Solve each equation.

4A. $2x(x + 4) + 7 = (x + 8) + 2x(x + 1) + 12$

$x + 8$

$2x^2 + 8x + 7 = x + 8 + 2x^2 + 2x + 12$

$-2x^2 \qquad -2x^2$

$8x + 7 = 3x + 20$

$-3x \quad -7 \qquad -3x \quad -7$

$\frac{5x}{5} = \frac{13}{5}$

$x = 2.6$

4B. $d(d + 3) - d(d - 4) = 9d - 16$

WB 8.2 prac.

12. $-6(11 - 2c) = 7(-2 - 2c)$

13. $t(2t + 3) + 20 = 2t(t - 3)$