Algebra I
Notes 4.2 Multiplying and Dividing Expressions

Objective: Evaluate algebraic expressions involving multiplication, division, and the Distributive Property.

Algebraic Expressions Involving Multiplication

6h means " _____."

If h = 2, 6h = ____. If h = ½, 6h = ____. If h = -1, 6h = ____. If h = 1.5, 6h = ____.

3t + 2 means " _____."

If t = 1, 3t + 2 = ____. If t = 0, 3t + 2 = ____. If t = -1, 3t + 2 = ____. If $t = \frac{1}{3}$, 3t + 2 = ____.

3x · 2 means " _____ " or " _____ "

using algebra tiles:

3x · 2 = _____

4 · 2x means " _____ " or " _____ "

using algebra tiles:

4 · 2x = _____

8x · 7 = _____ 2 · 9b = _____ -2x · 5 = _____ 1.4x · 3 = _____ 9x · 0 = _____

Multiply "like terms" to simplify a term.

x · x means " _____ " or " _____ "

using an algebra tile:

2x · 3x = _____ -4x · x = _____

x · x = _____ 1.1x · 8x = _____ 12x · ½x = _____

3 (x + 2) means " _____ " or " _____ ."

using algebra tiles:

3 (x + 2) = _____

2 (4x + 1) means " _____ " or " _____ . "

using algebra tiles:

2 (4x + 1) = _____

4 (y + 7) = _____ 2 (5y + 3) = _____ 6 (2x + 8) = _____

4 (x – 3) means " _____ " or " _____ ."

using algebra tiles:

4 (x – 3) = _____

2 (3x – 1) means " _____ " or " _____ . "

using algebra tiles:

2 (3x – 1) = _____

3 (x – 6) = _____ 5 (a – 9) = _____ 7 (b – 10) = _____

The Distributive Property of Addition	The Distributive Property of Subtraction
$a(b + c) =$ _____ + _____	$a(b - c) =$ _____ − _____

Follow the same pattern for distributing negative numbers.

$-4(y + 9) =$ _____ $-2(3y + 9) =$ _____ $-6(5x + 8) =$ _____

_____ _____ _____

$-3(x - 6) =$ _____ $-5(3a - 9) =$ _____ $-7(4b - 10) =$ _____

_____ _____ _____

Algebraic Expressions Involving Division

Simplify these division expressions by writing each division problem as a **fraction**, then **reduce**.

$14x \div 7 =$ ____ = $60x \div 10 =$ ____ = $-12x \div 4 =$ ____ =

$-25y \div 5 =$ ____ = $35x^2 \div 7 =$ _____ = $-42x^2 \div 6 =$ _____ =

Dividing an Expression

$$\frac{a+b}{c} = \frac{a}{c} + \frac{b}{c} \qquad \frac{a-b}{c} = \frac{a}{c} - \frac{b}{c}$$

Re-write each division problem as the sum or difference of two fractions, then reduce.

$\frac{12x+4}{4} =$ $\frac{25x-15}{5} =$ $\frac{-18x^2+27}{9} =$

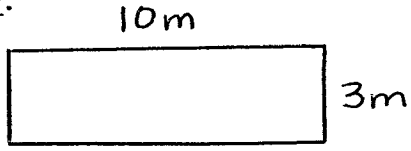
= = =

$\frac{22 - 4x}{2} =$ $\frac{-27 - 30x^2}{3} =$ $\frac{-10 + 270x^2}{10} =$

$=$ $=$ $=$

$=$ $=$ $=$

Geometry:

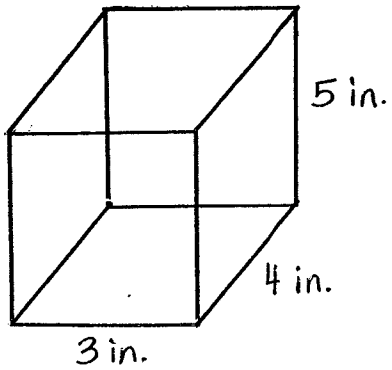


Find the **perimeter** of the rectangle shown above.

P = _____ m

Find the **area** of the rectangle shown above.

A = _____ m^2



Find the **volume** of the box shown above.

V = _____ $in.^3$

Simplify these expressions.

1. $5(-3a - 4) =$

2. $3(5x + 2y - 7) =$

3. $-4(4x + 5y - 3) =$

4. $-2(8x + 2y + 8) =$

5. $-3(4a - b + 3) - (5a + 2b - 9) =$

6. $-(5x + 2y - 7) - 2(3x + 4y + 1) =$

7. $-5(5x + y - 7) - 3(x + 4y + 1) =$

8. $8(2x + 3y - 1) + (-4)(9x + 4y + 3) =$

9. $[3(2x + 4) - 5] - [6(x + 3) - 7] =$

10. $[-(3y + 9) - 2] + [-2(y + 3) - 1] =$