

## Pre-Algebra

## Lesson 2.2

## The Distributive Property

Goal: to use the distributive property to simplify expressions and to use mental math.

You and a friend are going on a camping trip. You each buy a backpack that costs \$90 and a sleeping bag that costs \$60. What is the total cost for the camping trip for you and your friend?

$$180 + 120 \qquad \$150 \times 3$$

$$\qquad \qquad \qquad \$300$$

What 2 methods could we use to figure this out?

Equivalent expressions -

that are =

from previous example:

$$2(90 + 60) = 2(90) + 2(60)$$

This is the Distributive Property

The Distributive Property:

$$a(b + c) = ab + ac$$

$$(4 + x)2 = 2 \cdot 4 + 2x = 8 + 2x$$

$$-3(x - 5) = -3 \cdot x + -3 \cdot -5 = -3x + 15$$

Why does it work to distribute both forward and backward?

Comm. Prop for mult

After touring a cave, you visit the gift shop and buy 3 geodes. Each geode costs \$5.95.



$$3 \cdot 5.95$$

We can use the distributive property and mental math to find the total cost.

$$3(6 - .05) \text{ or } 3(5 + .95)$$

$$18 - .15 = \$17.85$$

Evaluate the expression using the distributive property and mental math.

$$4(105) = 4(100 + 5) = 420$$

$$3(97) = 3(90 + 7) \text{ or } 3(100 - 3)$$

$$5(2.9)$$

$$300 - 9 = 291$$

$$5(2 + .9)$$

$$5(3 - .1)$$

$$15 - .5 = 14.5$$

Use the distributive property to write an equivalent variable expression.

$$9(10r - s) \quad 90r - 9s$$

$$(y + 12)(-3)$$

$$-8(4x + 6) \quad -32x - 48 \quad 3y(3c) = -3y - 36$$

Are each pair of expressions equivalent? Why or why not?

$$-4(2 - x) = -8 + 4x \quad \text{F}$$

$$(3y + 5)(-2) = -6y - 10 \quad \text{T}$$

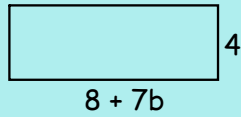
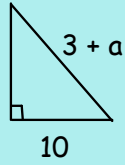
$$10(x - 2) = 10x - 2 \quad \text{F}$$

Find the area:

$$A = \frac{1}{2} \cdot b \cdot h$$

$$A = \frac{1}{2} \cdot 10 \cdot (3+a)$$

$$A = 5(3+a)$$



Hwk: pg 75 - 77

#2, 8, 10, 11, 21, 30, 35,

38 - 44 evens, 45 - 50 all