

Sec. 1.7: The Distributive Property

For every real number $a, b, \text{ \& } c$:

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

$$(b+c)a = ba+ca$$

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

$$(b-c)a = ba-ca$$

~ distributive property can help you do mental math to make a problem simpler.

Examples:

$$5(26) = 5(20) + 5(6) = 100 + 30 = 130$$

(20+6)

$$9(32) = 9(30) + 9(2) = 270 + 18 = 288$$

(30+2)

① Use the Distributive Property to simplify ~

a) $13(103)$

$$13(100+3)$$

$$13(100) + 13(3)$$

$$1300 + 39 = 1339$$

b) $21(101)$

$$21(100+1)$$

$$21(100) + 21(1)$$

$$2121$$

c) $24(98)$

$$24(100-2)$$

$$24(100) - 24(2)$$

$$2400 - 48 = 2352$$

d) $15(99)$

$$15(100-1)$$

$$1500 - 15$$

$$1485$$

② Find the total cost of 6 pairs of socks that cost \$2.95/pair.

$$6(3.00) - 6(.05)$$

$$18 - .30 = \$17.70$$

③ Simplify an Expression ~

$$a) \frac{6(m+5)}{6m+30}$$

$$b) \frac{2(3-7t)}{6-14t}$$

$$c) \frac{(0.4+1.1c)(3)}{1.2+3.3c}$$

$$d) \frac{1}{6} \frac{(6x+4)}{6x+4}$$

$$e) \frac{1}{2} \frac{(2x+1)}{2x+1}$$

$$f) \frac{1}{7} \frac{(7+5b)}{7+5b}$$

Practice:

$$① 2(5x+4)$$

$$10x+8$$

$$② \frac{1}{4}(12x-8)$$

$$3x-2$$

$$③ 6(5-3x)$$

$$30-18x$$

$$④ 0.1(30x-50)$$

$$3x-5$$

$$⑤ -\frac{1}{4}(4x+3)$$

$$-x-\frac{3}{4}$$

$$⑥ -\frac{1}{2}(-2x+1)$$

$$x-\frac{1}{2}$$

$$⑦ -(-7x-1)$$

$$7x+1$$

$$⑧ -5(8-b)$$

$$-40+5b$$

$$⑨ (5c-7)(-3)$$

$$-3(5c-7)$$

$$-15c+21$$