

## Notes 4.4 The Distributive Property

### Distributive Property of Multiplication over Addition

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

3(19) example:  $3(10 + 9) = 3 \cdot 10 + 3 \cdot 9$   
 $= 30 + 27$   
 $= 57$

### Distributive Property of Multiplication over Subtraction

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

7(29) example:  $7(30 - 1) = 210 - 7$   
 $= 203$

### Distributive Property of Division over Addition

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

$\frac{2036}{2}$  example:  $\frac{2000 + 36}{2} = \frac{2000}{2} + \frac{36}{2}$

$$= 1000 + 18 = 1018$$

### Distributive Property of Division over Subtraction

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

$\frac{196}{4}$  example:  $\frac{200 - 4}{4} = \frac{200}{4} - \frac{4}{4}$

$$= 50 - 1 = 49$$

Use Distributive Property to Simplify Each Expression

3 Steps: 1) Distribute 2) Simplify 3) Final Answer

$$7(20+3)$$

$$\textcircled{2} 9(30-4)$$

$$\textcircled{3} \frac{30+12}{6}$$

$$\frac{49-7}{7}$$

$$\textcircled{5} 8(2x+9)$$

$$\textcircled{6} \frac{-55-30x}{5}$$

$$-6(11+2)$$

$$\textcircled{8} -3(22-9)$$

$$\textcircled{9} \frac{64+4}{-8}$$

$$\frac{200-8}{4}$$

$$\textcircled{11} -5(-12y+9)$$

$$\textcircled{2} \frac{690-90x}{-10}$$

$$4(20-9+6)$$

$$\textcircled{14} -2(16-6-1)$$

$$\textcircled{5} \frac{-490+700-70}{70}$$

$$\frac{-3300+360+60}{3}$$

$$\textcircled{17} 11(10x-7y+9)$$

$$\textcircled{8} \frac{74x-38y-14}{2}$$