

Chapter 3 sec 3  
Simplifying Algebraic Expressions

If a, b and c are any integers then

Commutative Property of Mult.

$$a \cdot b = b \cdot a \text{ OR } ab = ba$$

Associative Property of Mult.

$$(a \cdot b) \cdot c = a \cdot (b \cdot c) \text{ OR } (ab)c = a(bc)$$

Example 1: page 187

simplify:  $2(3x)$

identity: left-hand side and right-hand side are the same for all values of x

check with a value of x

Example 2: page 188

Simplify:  $(-3x)(-5)$

Try:  $(-8a)(5)$

$(-4a)(5x)$

Example 4: page 189

Simplify:  $(2a)(3b)(4c)$

$(-3x)(-2y)(-4d)$

Distributive property

Order of operation

$$3(4 + 5)$$

Distributive property

$$3(4 + 5)$$

Example 5: page 190

Simplify:  $3(4x + 5)$

Example 8: page 192

Simplify:  $-5(2x - 3y + 8)$

Try:  $2(5y + 7)$

$7(4a - 5)$

$-3(4x - 11)$

$-3(4A - 5B + 7)$

Example 10: Page 193

$$-(a + b)$$

$$-(4a - 3c)$$