EXAMPLE 1 ■ Using the Distributive Property

(a) $2(x + 3) = 2 \cdot x + 2 \cdot 3$ Distributive Property وزعنا

$= 2x + 6$ Simplify بسطنا

(b) $(a + b)(x + y) = (a + b)x + (a + b)y$ Distributive Property

$= (ax + bx) + (ay + by)$ Distributive Property

$= ax + bx + ay + by$ Associative Property of Addition

$(a+b)(x+y)$

$a(x+y) + b(x+y)$

$ax + ay + bx + by$

EXAMPLE 2 ■ Using Properties of Negatives

Let x, y, and z be real numbers.

(a) $-(x + 2) = -x - 2$ Property 5: $-(a + b) = -a - b$

(b) $-(x + y - z) = -x - y - (-z)$ Property 5: $-(a + b) = -a - b$

$= -x - y + z$ Property 2: $-(-a) = a$

EXERCISES

2. Complete each statement and name the property of real numbers you have used.

(a) $ab =$ ba ; _____ Property commutative

(b) $a + (b + c) =$ (a+b)+c _____ Property Associative property

(c) $a(b + c) =$ ab+ac ; _____ Property Distributive

9–10 ■ Real Numbers List the elements of the given set that are

(a) natural numbers → {1, 2, 3, 4, ---}

(b) integers {--- −2, −1, 0, 1, 2, ---}

(c) rational numbers a/b , 0.45, 0.888---

(d) irrational numbers $\sqrt{7}$, $\sqrt{5}$, π

9. $\{-1.5, \underline{0}, \frac{5}{2}, \sqrt{7}, 2.71, -\pi, 3.1\overline{4}, \underline{100}, -8\}$

10. $\{1.3, 1.3333\ldots, \sqrt{5}, 5.34, -500, 1\frac{2}{3}, \sqrt{16}, \frac{246}{579}, -\frac{20}{5}\}$

9) Natural number 100

Integer 0, 100, −8

rational $-1.5, 0, \frac{5}{2}, 2.71, 3.1\overline{4}, 100, -8$

Irrational $\sqrt{7}, -\pi$