

Review Exercise Set 20

Exercise 1: Simplify.

$$3a^2(-2a + 5)$$

Exercise 2: Simplify.

$$4x^3y^2(x^2 - 5xy + 3y^2)$$

Exercise 3: Simplify.

$$(x - 5)(4x^2 - 3x + 1)$$

Exercise 4: Simplify.

$$(2b - 5)(b + 3)$$

Exercise 5: Simplify.

$$(2x - 1)(2x + 1)$$

Exercise 6: Simplify.

$$(3x - 2)^2$$

Review Exercise Set 20 Answer Key

Exercise 1: Simplify.

$$3a^2(-2a + 5)$$

Distribute the $3a^2$ to each term in the parenthesis

$$= 3a^2(-2a) + 3a^2(5)$$

Simplify

$$\begin{aligned} &= -6a^{2+1} + 15a^2 \\ &= \mathbf{-6a^3 + 15a^2} \end{aligned}$$

Exercise 2: Simplify.

$$4x^3y^2(x^2 - 5xy + 3y^2)$$

Distribute the $4x^3y^2$ to each term in the parenthesis

$$= 4x^3y^2(x^2) + 4x^3y^2(-5xy) + 4x^3y^2(3y^2)$$

Simplify

$$\begin{aligned} &= 4x^{3+2}y^2 + (4 * -5)x^{3+1}y^{2+1} + (4 * 3)x^3y^{2+2} \\ &= 4x^5y^2 + (-20)x^4y^3 + (12)x^3y^4 \\ &= \mathbf{4x^5y^2 - 20x^4y^3 + 12x^3y^4} \end{aligned}$$

Exercise 3: Simplify.

$$(x - 5)(4x^2 - 3x + 1)$$

Distribute the x and -5 to each term in the second set of parenthesis

$$\begin{aligned} &= (x)(4x^2 - 3x + 1) + (-5)(4x^2 - 3x + 1) \\ &= (x)(4x^2) + (x)(-3x) + (x)(1) + (-5)(4x^2) + (-5)(-3x) + (-5)(1) \end{aligned}$$

Simplify

$$\begin{aligned} &= (4x^{2+1}) + (-3x^{1+1}) + (x) + (-5 * 4)(x^2) + (-5 * -3)(x) + (-5 * 1) \\ &= 4x^3 - 3x^2 + x + (-20x^2) + (15x) + (-5) \\ &= 4x^3 - 3x^2 + x - 20x^2 + 15x - 5 \\ &= 4x^3 + (-3x^2 - 20x^2) + (x + 15x) - 5 \\ &= 4x^3 + (-23x^2) + (16x) - 5 \\ &= \mathbf{4x^3 - 23x^2 + 16x - 5} \end{aligned}$$

Exercise 4: Simplify.

$$(2b - 5)(b + 3)$$

Distribute the 2b and -5 to each term in the second set of parenthesis

$$\begin{aligned} &= (2b)(b + 3) + (-5)(b + 3) \\ &= (2b)(b) + (2b)(3) + (-5)(b) + (-5)(3) \end{aligned}$$

Simplify

$$\begin{aligned} &= (2b^{1+1}) + (2 * 3)(b) + (-5b) + (-15) \\ &= (2b^2) + (6b) + (-5b) + (-15) \\ &= 2b^2 + (6b - 5b) - 15 \\ &= \mathbf{2b^2 + b - 15} \end{aligned}$$

Exercise 5: Simplify.

$$(2x - 1)(2x + 1)$$

Distribute the 2x and -1 to each term in the second set of parenthesis

$$\begin{aligned} &= (2x)(2x + 1) + (-1)(2x + 1) \\ &= (2x)(2x) + (2x)(1) + (-1)(2x) + (-1)(1) \end{aligned}$$

Simplify

$$\begin{aligned} &= (2 * 2)(x^{1+1}) + (2x) + (-1 * 2)(x) + (-1) \\ &= (4)(x^2) + 2x + (-2)(x) - 1 \\ &= 4x^2 + 2x - 2x - 1 \\ &= \mathbf{4x^2 - 1} \end{aligned}$$

Exercise 6: Simplify.

$$(3x - 2)^2$$

Rewrite the problem as the product of two binomials

$$= (3x - 2)(3x - 2)$$

Distribute the 3x and -2 to each term in the second set of parenthesis

$$\begin{aligned} &= (3x)(3x - 2) + (-2)(3x - 2) \\ &= (3x)(3x) + (3x)(-2) + (-2)(3x) + (-2)(-2) \end{aligned}$$

Exercise 6 (Continued):

Simplify

$$\begin{aligned} &= (3 * 3)(x^{1+1}) + (3 * -2)(x) + (-2 * 3)(x) + (4) \\ &= (9)(x^2) + (-6)(x) + (-6)(x) + 4 \\ &= 9x^2 - 6x - 6x + 4 \\ &= \mathbf{9x^2 - 12x + 4} \end{aligned}$$