

## Review Exercise Set 2

Exercise 1: Completely factor the following polynomial by grouping.

$$6x^2 + 9x - 2x - 3$$

Exercise 2: Completely factor the following polynomial by grouping.

$$6a^2 - 10ab - 3ab + 5b^2$$

Exercise 3: Completely factor the following polynomial by grouping.

$$5ax + ay - 5bx - by$$

Exercise 4: Completely factor the following polynomial by grouping.

$$3x^2 + 2xy - 9xy - 6y^2$$

Exercise 5: Completely factor the following polynomial by grouping.

$$2a^2 - 3bc - 2ab + 3ac$$

## Review Exercise Set 2 Answer Key

Exercise 1: Completely factor the following polynomial by grouping.

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

Exercise 2: Completely factor the following polynomial by grouping.

$$\begin{aligned} &6a^2 - 10ab - 3ab + 5b^2 \\ &= (6a^2 - 10ab) + (-3ab + 5b^2) \\ &= 2a(3a - 5b) - b(3a - 5b) \\ &= \mathbf{(3a - 5b)(2a - b)} \end{aligned}$$

Exercise 3: Completely factor the following polynomial by grouping.

$$\begin{aligned} &5ax + ay - 5bx - by \\ &= (5ax + ay) + (-5bx - by) \\ &= a(5x + y) - b(5x + y) \\ &= \mathbf{(5x + y)(a - b)} \end{aligned}$$

Exercise 4: Completely factor the following polynomial by grouping.

$$\begin{aligned} &3x^2 + 2xy - 9xy - 6y^2 \\ &= (3x^2 + 2xy) + (-9xy - 6y^2) \\ &= x(3x + 2y) - 3y(3x + 2y) \\ &= \mathbf{(3x + 2y)(x - 3y)} \end{aligned}$$

Exercise 5: Completely factor the following polynomial by grouping.

$$\begin{aligned} &2a^2 - 3bc - 2ab + 3ac \\ &= 2a^2 - 2ab + 3ac - 3bc \\ &= (2a^2 - 2ab) + (3ac - 3bc) \\ &= 2a(a - b) + 3c(a - b) \\ &= \mathbf{(a - b)(2a + 3c)} \end{aligned}$$