

Adding and Subtracting Polynomials

Adding and Subtracting Polynomials

When adding polynomials, remove the brackets, then collect like terms.

Example: Simplify each expression.

$$\begin{aligned} \text{a) } (4x + 3) + (7x + 2) \\ &= \underline{4x + 3} + \underline{7x + 2} \\ &= 11x + 5 \end{aligned}$$

$$\begin{aligned} \text{b) } (2p - 2) + (4p - 7) \\ &= \underline{2p - 2} + \underline{4p - 7} \\ &= 6p - 9 \end{aligned}$$

$$\begin{aligned} \text{c) } (0.5v^2 + 2v) + (-2.4v^2 - 3v) \\ &= \underline{0.5v^2 + 2v} + \underline{-2.4v^2 - 3v} \\ &= -1.9v^2 - v \end{aligned}$$

State the **opposite** of each expression.

$$\begin{aligned} \text{a) } 7 \\ -7 \end{aligned}$$

$$\begin{aligned} \text{b) } -2x \\ 2x \end{aligned}$$

$$\begin{aligned} \text{c) } 4x + 1 \\ -4x - 1 \end{aligned}$$

$$\begin{aligned} \text{d) } 5y - 2 \\ -5y + 2 \end{aligned}$$

$$\begin{aligned} \text{e) } x^2 - 3x + 7 \\ -x^2 + 3x - 7 \end{aligned}$$

When subtracting a polynomial, add its opposite.

Example: Simplify each expression.

$$\begin{aligned} \text{a) } (3y + 5) - (7y - 4) \\ &= \underline{3y + 5} + \underline{(-7y + 4)} \\ &= -4y + 9 \end{aligned}$$

$$\begin{aligned} \text{b) } (a^2 - 2a + 1) - (-a^2 - 2a - 5) \\ &= \underline{a^2 - 2a + 1} + \underline{a^2 + 2a + 5} \\ &= 2a^2 + 6 \end{aligned}$$

Application

Example: A textbook is written by four authors. The publisher negotiates the following contract.

Author	Fixed Rate (\$)	Royalty (\$ per n books sold)
James	2000	-
Mya	1000	$2n$
Evan	1500	n
Michael	-	$3n$

a) Write a simplified expression for the total payout to the authors.

$$\begin{aligned} &2000 + 1000 + 2n + 1500 + n + 3n \\ &= 4500 + 6n \end{aligned}$$

b) Determine the total amount paid to the authors if 1200 books are sold.

$$4500 + 6(1200) = 4500 + 7200 = \$11700$$

Assignment: p.195 #3, 5, 6, 10, 12, 14, 16, 17, 19 – 22