

2.4 Polynomial Operations

-A- Sum and difference of Polynomials

Adding Polynomials: group like terms

Ex 1:

$$\begin{array}{r} 2x^2 - 3x - 3 \\ + \quad -2x^2 + 2x + 6 \\ \hline = \end{array}$$

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Ex 2: Simplify

$$\boxed{3x^2} + (\underline{5x} + \underline{10x}) = \underline{\hspace{2cm}}$$

$$(\boxed{8xy^2} + \boxed{9x^2y}) + \boxed{5xy^2} = \underline{\hspace{2cm}}$$

$$(\underline{6a} + \underline{12b}) + (\underline{7a} + \underline{5b}) = \underline{\hspace{2cm}}$$

$$(\underline{7y} + \boxed{6}) + (\boxed{8y^2} + \boxed{10}) = \underline{\hspace{2cm}}$$

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Subtracting polynomials: subtract each like term.
(It is like adding the opposite of each term)

Ex 3:

$$\begin{array}{r} 2a^2 + 5a + 8 \\ - \quad a^2 - 4a + 5 \\ \hline = \end{array}$$

Same as:

$$\begin{array}{r} 2a^2 + 5a + 8 \\ + \quad -a^2 + 4a - 5 \\ \hline = \end{array}$$

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Ex 4: Simplify by subtracting the polynomials

$$\underline{7x} - (\underline{5x} + \underline{10x}) = \underline{\hspace{2cm}}$$

$$\boxed{8x^2} + \underline{4x} - (\boxed{6x^2} + \underline{2x}) = \underline{\hspace{2cm}}$$

$$\underline{4a} + \underline{7b} - (\underline{12a} - \underline{5b}) = \underline{\hspace{2cm}}$$

$$\underline{7c} + \boxed{6c^2} - (\boxed{8c^2} - \boxed{10}) = \underline{\hspace{2cm}}$$

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Ex 5: Sam works at a Telephone Company he gets \$16/h but pays \$35 per paycheque for insurance. Pam works in a restaurant; she gets \$10/h and \$120 tips per pay period.

a) Write an algebraic expression for each of them.

b) Find the total of their incomes.

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$$\begin{array}{ll} S(h) = 16h - 35 & P(h) = 10h + 120 \\ T(h) = 26h + 85 & \end{array}$$

c) Find the difference between their incomes

d) If in one pay period they work 30 hours each, what is their total pay?

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Ex 6: Mix bag Polynomials review

- 1) Simplify: $3x^2 + 10x^2 - 6x + 4x$
- 2) True or false:
 - a) A monomial can have a negative exponent.
 - b) Like terms are monomials with the same variables raised to the same exponents.
 - c) A polynomial has at least two UNLIKE TERMS.
- 3) Simplify: $3a + 5b - (7a + 9b)$
- 4) Is $4x^2 - 7x + 10$ a trinomial?
- 5) Simplify: $3x + 7y - (2x - 6y)$
- 6) Circle the monomials
 $\sqrt{5a}$ $7a^5b^7$ y^{-10} 6 $12x^4$

Solutions

- 1) $13x^2 - 2x$
- 2) a) False
b) True
c) True
- 3) $-4a - 4b$
- 4) Yes
- 5) $x + 13y$
- 6) $7a^5b^7$, 6 , & $12x^4$

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Practice:

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