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# Adding Subtracting Polynomials Worksheet

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## Part 1: Building a Foundation

**What is the degree of the polynomial $4x^3 + 3x^2 - 2x + 7$?**

*Hint: Consider the highest power of the variable in the polynomial.*

○ A) 1
○ B) 2
○ C) 3
○ D) 4

**Which of the following are terms of the polynomial $5x^2 - 3x + 4$?**

*Hint: Identify the individual components of the polynomial.*

☐ A) $5x^2$
☐ B) $-3x$
☐ C) $4$
☐ D) $x^3$

**Define a polynomial and give an example.**

*Hint: A polynomial is a mathematical expression involving a sum of powers in one or more variables multiplied by coefficients.*

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**Identify the coefficient and the degree of the term $7x^4$.**

*Hint: The coefficient is the number in front of the variable, and the degree is the exponent of the variable.*

1. What is the coefficient?

2. What is the degree?

## Part 2: comprehension and Application

**Which statement best describes the process of adding polynomials?**

*Hint: Think about how you combine similar terms.*

○ A) Add the coefficients of all terms regardless of their variables.
○ B) Add only the constant terms.
○ C) Add the coefficients of like terms.
○ D) Add the highest degree terms only.

**When subtractING the polynomial $2x^2 - 3x + 5$ from $4x^2 + x - 2$, which steps are necessary?**

*Hint: Consider the steps involved in polynomial subtraction.*

☐ A) Change the signs of the terms in the second polynomial.
☐ B) Align like terms.
☐ C) Subtract the coefficients of like terms.
☐ D) Multiply the polynomials.

**A rectangle has a length represented by the polynomial $3x + 2$ and a width represented by $x - 1$. Write an expression for the perimeter of the rectangle.**

*Hint: The perimeter of a rectangle is given by the formula $P = 2(l + w)$.*

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**What is the result of adding the polynomials $3x^2 + 2x - 1$ and $x^2 - 4x + 3$?**

*Hint: Combine like terms carefully.*

○ A) $4x^2 - 2x + 2$
○ B) $4x^2 - 6x + 2$
○ C) $2x^2 - 2x + 2$
○ D) $4x^2 + 6x - 4$

## Part 3: Analysis, Evaluation, and Creation

**Which of the following best describes the relationship between the terms of the polynomial $2x^3 - 4x^2 + x - 5$?**

*Hint: Consider the degrees of each term.*

○ A) All terms have the same degree.
○ B) The terms have different degrees.
○ C) All terms are constants.
○ D) The polynomial has no like terms.

**When analyzing the polynomial $5x^2 - 3x + 7$, which statements are true?**

*Hint: Evaluate each statement based on the polynomial's structure.*

☐ A) The polynomial has three terms.
☐ B) The degree of the polynomial is 2.
☐ C) The coefficient of the linear term is -3.
☐ D) The constant term is 7.

**Evaluate the polynomial $x^3 - 6x^2 + 11x - 6$ and determine if it can be factored into linear factors. Explain your reasoning.**

*Hint: Use the Rational Root Theorem or synthetic division to evaluate.*

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**Create a polynomial that represents the area of a triangle with a base of $2x + 3$ and a height of $x - 1$. Write the polynomial and explain your reasoning.**

*Hint: The area of a triangle is given by $A = \frac{1}{2} \times base \times height$.*

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