Algebraic Expression

A. Choose the correct answer:

1. Which of the following is a binomial?

a) $5x + 7$ b) $2xy + 3xz + yz$

c) x^3 d) 7

2. In the expression $4a^2b - 5ab^2 + 6b$, the number of terms is:

a) 1 b) 2

c) 3 d) 4

3. The coefficient of x in the expression $7x - 3y + 4$ is:

a) -3 b) 4

c) 7 d) 0

4. Which of the following is a like term to $5a^2b$?

a) $3ab^2$ b) $-2a^2b$

c) $4ab$ d) $7a^3b$

5. If $x = 2$ and $y = 3$, the value of the expression $x^2 + y^2$ is:

a) 13 b) 12

c) 14 d) 15

B. Write the Missing Terms to Complete the Sentences:

1. An expression containing only one term is called a _____.
2. The degree of the expression $3x^2y^3$ is _____.
3. Terms having the same variables with the same powers are called _____ terms.
4. In the expression $2a + 3b - 7$, the constant term is _____.
5. The sum of $5x$ and $-3x$ is _____.

C. Mark each sentence with a True (✔) or False (✗):

1. An algebraic expression must contain at least one variable. _____

2. The degree of a constant term is always 1. _____
3. $5x^2y$ and $-3x^2y$ are like terms. _____
4. The expression $x + y + z$ is a monomial. _____
5. In the expression $4p - 5q + 6$, the constant term is 6. _____

D. Figure out the answers to these questions:

1. Identify the terms, coefficients, and variables in the expression $4xy - 7y + 5$.
2. Add: $(2x + 3y - 5)$ and $(3x - 2y + 7)$.
3. Subtract $(5a - 3b + 2)$ from $(7a + 2b - 4)$.
4. Simplify: $3(x + 4) - 2(x - 5)$.
5. Multiply: $(2x - 3)(x + 5)$.

E. Challenge yourself with these questions:

1. Find the sum of $2x^2 - 5x + 3$ and $-x^2 + 4x - 7$.
2. Write an algebraic expression for: The sum of a number and 9 is divided by 2.
3. Factorize: $x^2 + 7x + 12$.
4. Expand: $(x + 2)(x + 5)$.
5. Simplify: $\left(\frac{3}{2}\right)x - \left(\frac{5}{3}\right)x + \left(\frac{7}{6}\right)x$.