

Algebraic Expressions Worksheet - 1

- I. Simplify the following linear expressions:
- $3(m - 5) + m$
 - $4(3k + 2 + 6k)$
 - $16x + 2 + 5 - 2x$
 - $4(a - 5) + 3a$
- II. Simplify the following polynomial expression:
- $10 + 2y^2 - (4y - 4y^2 + 2)$
 - $5m^5 - 4m^2 + 2m^5 + 6m^2$
 - $4x^2 + 3x + 5x^2 + 2$
 - $3d^2 + 5d^2 + 2d(d + 3)$
- III. Simplify the following expressions with positive exponents:
- $(4y^2)(2y^5)$
 - $4x^5/2x^2$
 - $6p^6/12p^3$
 - $[(4t^2)(2t^5)]/5t^3$
- IV. Simplify the expressions with negative exponents:
- $(9u^{-5})(6u^{-2})$
 - $7p^{-5}/14p^{-3}$
 - $[(5t^{-7})(2t^{-6})]/5t^{-5}$
- V. Convert the given phrases into an algebraic expression:
- M raised to the fifth power: _____
 - Combine the square of r and 12: _____
 - One-third of the cube of p: _____
 - “A” decreased by the total of “B” and “C”: _____
 - Z added to the square of X: _____
- VI. Convert the given verbal phrase into the linear inequalities:
- Y is not more than 12: _____
 - The value of “a” is less than 13: _____
 - The value of x is almost 9: _____
 - 7 is greater than or equal to x: _____
 - The value of y is less than or equal to 18: _____
- VII. Expand the given expression using the algebraic identities:
- $(4p + q)^2$
 $[a - (1/a)]^2$
 $(u + v + w)^2$

$$(5 + m - n)^2$$

VIII. Find the value of the variable using the algebraic identities:

1. Determine the value of $a-b$, if $a + b = 5$ and $ab = 4$.
2. Find the value of $a - (1/a)$, if $a + (1/a) = 2$.

IX. Which of the following are the factors of $12ab$?

- (a) $2a^3$
- (b) $6ab$
- (c) $4a^3b$
- (d) 12
- (e) ab

X. Write down the factors of $9xy$.

XI. Complete the function table for the given algebraic expression:

a	$(a + 5)(a + 2)$
-2	
-1	
1	
4	
5	