Mathematics 9

Algebra – Collecting Like Terms

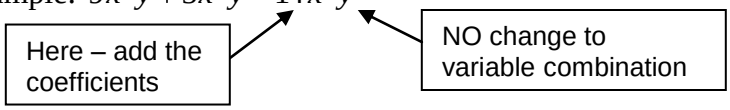
Date:

Like terms have the same variable combination. (Same letters and same exponents)

For example: $9x^2y$ and $5x^2y$ are like terms BUT $9x^2y$ and $5xy^2$ are not like terms.

You can combine like terms by addition or subtraction. To do this, you add or subtract the coefficients and **keep** the same variable combination.

For example: $9x^2y + 5x^2y = 14x^2y$



Similarly:

a) $12ab - 16ab = -4ab$ b) $6x + 3x + 6y + 8y = 9x + 14y$ c) $4x^2 + 8x - 11x = 4x^2 - 3x$

Questions:

1. State the coefficient of each term:

a) $5w$ b) $-3x$ c) $-y$ d) -6 e) $\frac{3}{4}x^2$

2. Classify each of the following polynomials as *monomial, binomial,* or *trinomial*:

a) $3x - 2y$ b) $-5xy$ c) $3x^2 - 9x - 1$ d) $21xy^3$ e) $3x + 2y + 1$

3. Simplify each of the following:

a) $2k + 3k$ b) $-5m + 2m$ c) $-3x - 5x$ d) $-6p + 3p - 5p$ e) $4r^2 - r^2$

f) $2y^2 + 5y^2$ g) $5x + 3x - 9x$ h) $3m - 2n + m$ i) $3h + 5h + 2$ j) $-12x^2 + 6x^2$

k) $7y - 3y - x^2 + 4x^2$ l) $2t - 3 - 5t + 7$ m) $3x - 4y - x - 6y$

n) $(5h + 3) + (2h - 8)$ o) $(5x + 6) + (2x - 8)$ p) $(2x - 3y) + (3x + y)$

q) $(7xy - 2) + (4xy + 2)$ r) $(6b - 1) + (2b - 5)$ s) $(x^2y - 4xy^2) + (6xy^2 + 3x^2y)$

Answers:

1. a) 5 b) –3 c) –1 d) –6 e) $\frac{3}{4}$
2. a) binomial b) monomial c) trinomial d) monomial e) trinomial
3. a) $5k$ b) $-3m$ c) $-8x$ d) $-8p$ e) $3r^2$ f) $7y^2$ g) $-x$ h) $4m - 2n$
   i) $8h + 2$ j) $-6x^2$ k) $3x^2 + 4y$ l) $-3t + 4$ m) $2x - 10y$ n) $7h - 5$ o) $7x - 2$
   p) $5x - 2y$ q) $11xy$ r) $8b - 6$ s) $4x^2y + 2xy^2$