

INTERNATIONAL INDIAN SCHOOL BURAIDAH

Worksheet for the Academic Year 2025-26

CLASS: VIII

SUBJECT: MATHEMATICS

DATE: 14-09-2025

Lesson 8: Algebraic Expressions and Identities

1. Identify the terms and coefficients of the following expressions:
  - a)  $6x^2 + 2xy - 7y$
  - b)  $9y^2 - 10y + 2$
  - c)  $5xy + 9yz + 7x - 2y$
  - d)  $4ab - 5a + 8c$
2. Write three examples of
  - a) Monomial
  - b) Binomial
  - c) Trinomial
  - d) Polynomial
3. Identify the like terms from the following  
 $7x, -3xy, 2y^2, 5xy, 10x, -25x^2, 100y^2, -5xyz, 6xz, 8yz, -34xyz, 9zy, 7zx$
4. Add the following:
  - a)  $(2x + 5y - 3), (-5x + 4y - 10)$
  - b)  $(6x^2 + 8xy + 7y - 11), (-4x^2 - 7xy + 10y + 25)$
  - c)  $(2ab + 3bc + 4ac), (6a - 3ab + 9bc)$
5. Subtract:
  - a)  $(4x + 5)$  from  $(-3x + 7)$
  - b)  $3x^2 - 5x + 7$  from  $5x^2 - 7x + 9$
  - c)  $2a^3 - 4a^2 + 3a + 5$  from  $4a^3 + a^2 + a + 6$
6. Subtract  $3x - 4y - 7z$  from the sum of  $x - 3y + 2z$  and  $-4x + 9y - 11z$
7. Find the sum of  $5 + x - x^2 - x^3$ ,  $3x - 5 + 2x^2 - x^3$ ,  $x + 5 + 2x^3 - 5x^2$
8. Subtract  $2p^3 - p^2 + 4p - 6$  from  $p^3 + 5p^2 - 4p + 6$
9. Multiply:
  - a)  $(-5xy) \times (-3x^2yz)$
  - b)  $4ab \times 10bc$
  - c)  $5a \times (6a + 7b + 2c)$
  - d)  $(x + 5)(2x - 7)$
  - e)  $(3m + 2) \times (2m + 4n - 5p)$
  - f)  $(3x + 4)(x - 5) + (4x - 6) \times (x - 1)$
  - g)  $(a - b)(a^2 + ab + b^2)$
  - h)  $(\frac{5}{6}p^2 + 2q^2) \times 2(\frac{1}{2}p^2 - 3q^2)$
  - i)  $(2.5m - 3n) \times (5m + 1.5n)$

10. Simplify:

- a)  $7(2x + 4) - 3(6x + 1)$
- b)  $(a + b)(a + b + c) + (a + b)(a - b - c)$
- c)  $3x(x + y + z) - 2y(x - y + z)$
- d)  $2x^2(x + 2) - 3x(x^2 - 3) - 5x(x + 5)$

11. Simplify and evaluate

- a)  $3(2x + 7) - 5(x - 3)$  for  $x = 1$
- b)  $(10a^2 - 5b^2 + 8c) - 25abc$  for  $a = 2, b = -1, c = 0$
- c)  $(x + y)(x - y) - x^2$  for  $x = 3$  and  $y = 4$

### Answers:

1.

| Expressions           | Terms               | Coefficients |
|-----------------------|---------------------|--------------|
| $6x^2 + 2xy - 7y$     | $6x^2, 2xy, -7y$    | 6, 2, -7     |
| $9y^2 - 10y + 2$      | $9y^2, -10y, 2$     | 9, -10       |
| $5xy + 9yz + 7x - 2y$ | $5xy, 9yz, 7x, -2y$ | 5, 9, 7, -2  |
| $4ab - 5a + 8c$       | $4ab, -5a, 8c$      | 4, -5, 8     |

2. Do self

3.  $(7x, 10x), (-3xy, 5xy), (2y^2, 100y^2), (-5xyz, -34xyz), (6xz, 7zx), (8yz, 9zy)$  are like terms

4. a)  $-3x + 9y - 13$       b)  $2x^2 + xy + 17y + 14$       c)  $6a - ab + 12bc + 4ac$

5. a)  $-7x + 2$       b)  $2x^2 - 2x + 2$       c)  $2a^3 + 5a^2 - 2a + 1$

6.  $-6x + 10y - 2z$

7.  $5 + 5x - 4x^2$

8.  $-p^3 + 6p^2 - 8p + 12$

9. a)  $15x^3y^2z$       b)  $40ab^2c$       c)  $30a^2 + 35ab + 10ac$

d)  $2x^2 + 3x - 35$       e)  $6m^2 + 12mn - 15mp + 4m + 8n - 10p$

f)  $7x^2 - 21x - 14$       g)  $a^3 - b^3$       h)  $\frac{5}{6}p^4 - 3p^2q^2 - 12q^4$

i)  $12.5m^2 - 11.25mn - 4.5n^2$

10. a)  $-4x + 25$

b)  $2a(a + b)$

c)  $3x^2 + xy + 3xz + 2y^2 - 2yz$

d)  $-x^3 - x^2 - 16x$

11. a) 37

b) 35

c) -16

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