

8th - Algebraic Expression & Identities - I



1. Identify the terms, their coefficients for each of the following expressions.

(i) $5xyz^2 - 3zy$ [term= $5xyz^2 - 3zy$, coefficient= $5, -3$]
 (ii) $1 + x + x^2$ [term= $1, x, x^2$ coefficient= $1, 1, 1$]

2. Add the following.

(i) $ab - bc, bc - ca, ca - ab$ [0]
 (ii) $a - b + ab, b - c + bc, c - a + ac$ [$ab + bc + ca$]
 (iii) $\frac{2}{3}a, -\frac{3}{5}a, \frac{7}{9}a$
 (iv) $\frac{7}{2}x^3 - \frac{1}{2}x^2 + \frac{5}{3}, \frac{3}{2}x^3 + \frac{7}{4}x^2 - x + \frac{1}{3}, \frac{3}{2}x^2 - \frac{5}{2}x - 2$.

3. Subtract $4a - 7ab +$ from $12a - 9ab + 5b - 3$

4. Subtract $3x + 5yz - 7zx$ from $5xy - 2yz - 2zx + 10xyz$. [$2xy - 7yz + 5zx + 10xyz$]

5. Take away $\frac{6}{5}x^2 - \frac{4}{5}x^3 + \frac{5}{6} + \frac{3}{2}x$ from $x^3/3 - 5/2x^2 + 3/5x + 1/4$

6. Subtract the sum of $2x - x^2 + 5$ and $-4x - 3 + 7x^2$ from 5.

7. Simplify:

- $x^2 - 3x + 5 - \frac{1}{2}(3x^2 - 5x + 7)$
- $(\frac{1}{3}y^2 - \frac{4}{7}y + 11) - (\frac{1}{7}y - 3 + 2y^2) - (\frac{2}{7}y - \frac{2}{3}y^2 + 2)$

8. Find the area of the rectangle with the following pair as length and breadth respectively:

$2ax, 8t$ $56yx, 16zx$ $42c^2x, 14xc$ $3mn, 4np$

9. Find the volume with the following length, breadth and height:

$2xd, 3by, 5cz$ m^2n, n^2p, p^2m $2q, 4q^2, 8q^3$

10. Find the product of the following and verify when $x=1, y=2$ and $z=3$:

- $-5x^2y, -\frac{2}{3}xy^2z, \frac{8}{15}xyz^2$
- $x^3, 7x^5, \frac{1}{5}y^2, -16z^2$
- $-\frac{4}{3}xy^2, \frac{6}{7}x^2y$

11. Evaluate $(2.3 a^5b^2) \times (1.2a^2b^2)$ when $a = 1$ and $b = 0.5$

12. Multiply the monomial by a binomial and find the result when $x = -1, y = 0.25$ and $z = 0.05$:

- $15y^2(2 - 3x) - 3x(y^2 + z^2)$ $z^2(x - y)$

13. Determine the following products and find the value of each $x=2, y=1.15$ and $z=0.01$:

- $27x^2(1 - 3x)$ $zx(x^2 + y^2)$ $z^2(x - y)$

14. Simplify the expression and evaluate as directed:

- $x(x - 3) + 2$ when $x = 2$ $3y(2y - 7) - 3(y - 4)$ when $y = -2$
- $5m(3 - m) + 6m^2 - 13m$ when $m = -1$

15. Simplify each of the following:

- $15a^2 - 6a(a - 2) + a(3 + 7a)$ Learning With Innovation.....
- $x^2(1 - 3y^2) + x(xy^2 - 2x) - 3y(y - 4x^2y)$
- $4st(s - t) - 6s^2(t - t^2) - 3t^2(2s^2 - s) + 2st(s - t)$

16. Multiply:

- $(2x + 3y)$ and $(4x - 5y)$ $(3x + 2y)$ and $(5x + 3y)$
- $(\frac{1}{5}x - \frac{1}{4}y)$ and $(5x^2 - 4y^2)$ $(7a + 3b)$ and $(2a + 3b)$

17. Find the product of: $(y + \frac{2}{7}y^2)$ and $(7y - y^2)$ when $y = 3$.

18. Multiply:

- $(3x - 2)(2x - 1)(3x + 5)$
- $(5 - x)(3 - 2x)(4 - 3x)$
- $(x^2y - 1)(3 - 2x^2y)$
- $x^2(x + 2y)(x - 3y)$
- $(5x - 3)(x + 2) - (2x + 5)(4x - 3)$
- $(x^3 - 2x^2 + 3x - 4)(x - 1) - (2x - 3)(x^2 - x + 1)$