Unique Paper Code: MATH/2026/EXP/7/0482
Year: 2026 Chapter: Algebraic Expressions Class: 7 S.No.: 0482

Solutions: Algebraic Expressions

1.
$$(0.6x^2y - 1.2xy^2) - (0.3x^2y + 0.8xy^2) + (1.5xy^2 - 0.9x^2y)$$
$$= 0.6x^2y - 1.2xy^2 - 0.3x^2y - 0.8xy^2 + 1.5xy^2 - 0.9x^2y$$
$$= (0.6x^2y - 0.3x^2y - 0.9x^2y) + (-1.2xy^2 - 0.8xy^2 + 1.5xy^2)$$
$$= -0.6x^2y + 0.5xy^2$$
The simplified form is $\boxed{-0.6x^2y + 0.5xy^2}$.

2.
$$3(5a - 3b + 2c) = 15a - 9b + 6c$$
$$(15a - 9b + 6c) - (2a + 4b - c) = 13a - 13b + 7c$$
The final expression is $\boxed{13a - 13b + 7c}$.

3. The expression $3y - 8$ is a binomial with a constant term of -8. The correct option is $\boxed{3y - 8}$.

4.
$$\text{Length} = \frac{\text{Area}}{\text{Width}} = \frac{12k^2 + 5k - 2}{3k + 2}$$
Performing polynomial division or factoring:
$$12k^2 + 5k - 2 = (3k + 2)(4k - 1)$$
The expression for the length is $\boxed{4k - 1}$.

5.
$$\frac{1}{4}(16p - 12q + 8) = 4p - 3q + 2$$
$$\frac{2}{3}(9q - 6p + 3) = 6q - 4p + 2$$
$$(4p - 3q + 2) + (6q - 4p + 2) = 3q + 4$$
The coefficient of p in the sum is $\boxed{0}$.

6.
$$3m^2 - 5m$$
The correct algebraic expression is $\boxed{3m^2 - 5m}$.

7.
$$(7x^2y - 4xy^2) + P = 2x^2y + 3xy^2$$
$$P = (2x^2y + 3xy^2) - (7x^2y - 4xy^2) = -5x^2y + 7xy^2$$
The expression for P is $\boxed{-5x^2y + 7xy^2}$.

8.

$$4b - 5a + 6b = -5a + 10b$$

$$3a - (-5a + 10b) = 3a + 5a - 10b = 8a - 10b$$

$$2b + (8a - 10b) = 8a - 8b$$

$$5a - (8a - 8b) = -3a + 8b$$

The simplified form is $\boxed{3a - 8b}$.

9. The numerical coefficient of the second term $\frac{7}{10}bc$ is $\boxed{\frac{7}{10}}$.

10.

$$\text{Third side} = (15m + 21) - (4m + 5 + 5m + 8) = 6m + 8$$

The length of the third side is $\boxed{6m + 8}$.

11.

$$2(2r^2s + rs^2) = 4r^2s + 2rs^2$$

$$(8r^2s - 3rs^2) - (4r^2s + 2rs^2) = 4r^2s - 5rs^2$$

The difference is $\boxed{4r^2s - 5rs^2}$.

12. The expression $m + n = 10$ is not a valid algebraic expression because it contains an equality sign. The correct option is $\boxed{m + n = 10}$.

13.

$$\text{Perimeter} = 2[(2x + 7) + (x - 3)] = 2(3x + 4) = 6x + 8$$

$$\text{Half of perimeter} = \frac{6x + 8}{2} = 3x + 4$$

The expression for half of the perimeter is $\boxed{(3x + 4)}$ cm.

14. The expression $9-5u+2u^2$ has the constant term 9, the coefficient of u is -5, and the coefficient of u^2 is 2. The correct option is $\boxed{\text{The constant term 9, coefficient of } u \text{ is } -5, \text{ and coeffic}}$

15.

$$\frac{3x - 4y}{2} = \frac{12x - 16y}{8}$$

$$\frac{2y - x}{4} = \frac{4y - 2x}{8}$$

$$\frac{x + y}{8} = \frac{x + y}{8}$$

$$\frac{12x - 16y + 4y - 2x - x - y}{8} = \frac{9x - 13y}{8}$$

The simplified form is $\boxed{\frac{9x - 13y}{8}}$.