

CHAPTER 10

A. Prabhjot is revising for the test of algebraic expressions and given below questions are from the test which his elder sister has made for him to practice.

1. The correct algebraic expression for 'quarter of square of x added to the two-fifth of the product of the squares of x and y ' is

a. $\frac{1}{4}x^2 + \frac{2}{5}xy$. b. $\frac{1}{4}x^2 + \frac{2}{5}x^2y^2$. c. $\frac{1}{4}x^2 + \frac{2}{5}xy^2$. d. $\frac{1}{4}x^2 + \frac{2}{5}x^2y$.

2. The like terms in the expression $8x^2y - \frac{2}{3}y^2x + 19yx^2 - \frac{2}{5}x^2y^2$ are

a. $8x^2y$ and $-\frac{2}{3}y^2x$. b. $8x^2y$ and $19yx^2$.
c. $\frac{2}{3}y^2x$ and $-\frac{2}{5}x^2y^2$. d. $19yx^2$ and $-\frac{6}{7}x^2y^2$.

3. Choose the correct factor tree for the expression $9(mn + m^2n)$.

a.

Terms	Factors
$9mn$	9, m, n
m^2n	m, m, n

b.

Terms	Factors
$9mn$	9, m, n
mn	m, n

c.

Terms	Factors
$9mn$	9, m, n
$9m^2n$	9, m, m, n

d.

Terms	Factors
mn	m, n
$9m^2n$	9, m, m, n

4. Identify the monomial and binomial among the following expressions.

$8x^2yz$; $6xy - 2xy^2$; $7xy + 8x^2 - 3y$ and $4(xy - xy^2)$

- a. Monomial: $8x^2yz$ and $4(xy - xy^2)$, Binomial: $6xy - 2xy^2$
b. Monomial: $8x^2yz$, Binomial: $6xy - 2xy^2$ and $7xy + 8x^2 - 3y$
c. Monomial: $8x^2yz$, Binomial: $6xy - 2xy^2$
d. Monomial: $8x^2yz$, Binomial: $6xy - 2xy^2$ and $4(xy - xy^2)$

5. What is the value of the expression $\frac{2}{3}m^2 - mn^2 + 8mn$ for $m = 3$ and $n = -1$?

a. -25 b. 25 c. 21 d. -21

B. Algebraic expressions can be added or subtracted. Algebraic expressions are used to generalise the mathematical rules. A general form is used to find the value of any number of quantities or value of the variable. For example, sum of first 4 natural numbers is 10 and sum of first n natural numbers is given by $\frac{n(n+1)}{2}$.

1. What should be subtracted from $9x^2 - 6y^2 + 10xy$ to get $5x^2 + 4y^2 - 8xy$?

a. $4x^2 - 10y^2 + 18xy$ b. $14x^2 - 2y^2 + 2xy$
c. $4x^2 + 10y^2 + 18xy$ d. $14x^2 + 2y^2 - 2xy$

2. The value of the expression $[5a^2 + 3b^2 - \{4b^2 + 2a^2 - (5c + 3b + 2ab)\}]$ for $a = 2$, $b = -1$, $c = 3$ is

a. 12. b. 19. c. 27. d. 15.

3. The correct general form for  is

a. $3n$. b. $3n - 2$. c. $2n + 1$. d. $n + 2$.

4. Which of the following expression gives the general form of an odd number?

a. $2n$ b. $2n + 2$ c. $2n + 1$ d. $3n$

5. The general formula for the area of a triangle is given by $\frac{bh}{2}$, where b is the base and h is the height of the triangle. Find the area of the triangle for $b = 6$ cm and $h = 10$ cm.

a. 60 cm b. 30 cm c. 60 cm^2 d. 30 cm^2