INDIAN SCHOOL AL WADI AL KABIR

Class VII, Mathematics (2022-23)

Worksheet DTQ – ALGEBRAIC EXPRESSIONS

SHORT ANSWER TYPE QUESTIONS- 7 QUESTIONS. (2 Marks each)	
Q1.	Write the algebraic expressions for the following statements: a) Number 8 subtracted from the product of 7 and square of p. b) One-fourth of x is added to twice x^2. c) If 10 is added to four times a number, the result is 5 less than five times the number. d) 9 subtracted from three times the product of a and b.
Q2.	Classify the following expressions as monomial, binomial and trinomial a) $2x^2 - x$ b) $\frac{3y}{2}$ c) $xy + yz + zx$
Q3.	Evaluate $ax^2 + by^2 - cz^2$ for x = −1, y = 1, z = 2, a = −2, b = −1 and c = 2.
Q4.	If $X = a^2 - b^2$ and $Y = a^2 + b^2$, then find the value of 2X − Y.
Q5.	Find the value of $5a^2 + 2ab^2 + 7$, if a = −2 and b = −3.
Q6.	Subtract $2z^2 + 4z - 3$ from $6z + 5z^2 - 9$.
Q7.	Find the sum of the algebraic expressions: $5a^2 + 7a - 4$; $5a + 4 - a^2$; $5 - 3a$.
SHORT ANSWER TYPE- 5 QUESTIONS. (3 Marks each)	
Q8.	Identify the terms and their factors in the following expressions and show the terms and factors by tree diagrams. a) $3x^2 + 2y^2 - 5xy + 6$ b) $-7xy^2 + 5x^2y$
Q9.	Simplify the following expression: $6pq - 4q^2 - p^2 - 2(p^2 - 3pq + 7q^2 - 2)$
Q10.	What should be the value of m if the value of $2x^2 - 5x + m$ is equal to (-1) when x = 1
Q11.	If p = 4, then find the value of 3(2p − 1) + 2p + 15.
Q12.	Simplify the following algebraic expression by combining like terms. a) $5p^2q - 3pq^2 + 8pq - 8p^2q - 5pq + 7pq^2$ b) 4(2x+1) − 3x
LONG ANSWER TYPE- 3 QUESTIONS. (4 Marks each)	
Q13.	From the sum of 5a + 2 and $5a^2 + 7a - 4$ subtract the sum of $3a^2 - 5a$ and $4a - 5a^2 + 7$.
Q14.	If $P = 2x^2 + 3xy - 5y^2$, $Q = -5x^2 + 2xy + 3x^2$ and $R = -3x^2 + 5xy - 2y^2$ Show that P + Q − R = 0.
Q15.	If $P = 2a^3 - 3a^2 + 4a - 5$, $Q = 2a^2 - 3a - a^3 + 3$, $R = -a^3 + a^2 - a + 2$, find: i) P + Q + R ii) P −Q−R

ANSWERS

Q1.
a) $7p^2 - 8$
b) $\frac{x}{4} + 2x^2$
c) 4x + 10 = 5x − 5
d) 3ab − 9

Q2.
a) Binomial
b) Monomial
c) Trinomial

Q3. (-11)

Q4. $a^2 - 3b^2$

Q5. (-9)

Q6. $3z^2 + 2z - 6$

Q7. $4a^2 + 9a + 5$

Q8.

Expression	Terms	Factors
a) $3x^2 + 2y^2 - 5xy + 6$	$3x^2$; $2y^2$; $-5xy$; 6.	3, x, x; 2, y, y; -5, x, y; 6.
b) $-7xy^2 + 5x^2y$	$-7xy^2$; $5x^2y$	-7, x, y, y; 5, x, x, y

Q9. $12pq - 3p^2 - 18q^2 + 4$

Q10. m = 2

Q11. 44

Q12.
a) $-3p^2q + 4pq^2 + 3pq$
b) 5x + 4

Q13. $7a^2 + 13a - 9$

Q15.
i) P + Q + R= 0
ii) P −Q−R = $4a^3 - 6a^2 + 8a - 10$,