INDIAN SCHOOL AL WADI AL KABIR

Class VIII, Mathematics (2023-24)

Worksheet DTQ – ALGEBRAIC EXPRESSION AND IDENTITIES

SHORT ANSWER TYPE QUESTIONS- 7 QUESTIONS. (2 Marks each)	
Q1.	Find the perimeter of a triangle whose sides are $2x^2 + 3xy - 11y$, $x^2 + 11xy + 3y$ and $-x^2 - xy - y$.
Q2.	Subtract $8x^3 + 4x^2 - 2x$ from $11x^4 + 5x^3 - x^2 - 6x$.
Q3.	Find the product: a) $\frac{3}{5}ax^3 \times \frac{1}{6}bx^2 \times \frac{2}{5}aby$ b) $7p^2q(pq - 9p^2q^2)$
Q4.	Find the area of a rectangle whose length is $(2x + 7)$units and breadth is $(x - 5)$units.
Q5.	Find the value of x, if $4x = 52^2 - 48^2$ (CBQ)
Q6.	Simplify $(3y^2 + 9)(3y^2 - 5)$ using suitable identity.
Q7.	Find the volume of a rectangular box with $xy, 2x^2y$ and $2xy^2$ as length, breadth and height respectively.
SHORT ANSWER TYPE- 5 QUESTIONS. (3 Marks each)	
Q8.	Simplify the expression $(x + y)(2x + y) + (x + 2y)(x - y)$ and find the value for $x = 1,\ y = 2$.
Q9.	Using identities, evaluate: a) 103×97 b) 102×103 c) 98^2
Q10.	Simplify: i) $(p^2 - q^2r)^2 + 2p^2q^2r$ ii) $(4xy + 3y)^2 - (4xy - 3y)^2$

Q11.	Simplify $(p-q)(4p-3q+2r)-(-2p+4r)2p$
Q12.	Simplify using identities:$2x = \frac{198\times198-102\times102}{96}$
LONG ANSWER TYPE- 3 QUESTIONS. (4 Marks each)	
Q.13	Simplify the following using suitable identities: a) $\left(\frac{2}{5}p+3\right)\left(\frac{2}{5}p+3\right)$ b) $(2x+9y)(2x-9y)$ c) $\left(\frac{x}{2}-\frac{3y}{4}\right)\left(\frac{x}{2}-\frac{3y}{4}\right)$ d) $(y-7)(y+5)$ e) $(x-7)(x-17)$ f) $(m+12)(m+15)$
Q14.	Verify that $(11pq + 4q)^2 – (11pq – 4q)^2 = 176pq^2$
Q15.	Read the given situation and answer the following: Ravi enjoys going for party with his friends every weekend. He started having difficulty in sleeping, back and joint pains, fatigue, feeling shortness of breath etc. On consulting the Doctor, he was advised to reduce his weight. He decided to follow a strict diet plan and exercise regularly. Ravi decided to construct a rectangular swimming pool whose length is $2n-5$ metre, breadth $2n+5$ metre, and height $4m^2n$ metre. a) Find the base area of the swimming pool? b) If the cost of tiling is ₹ 15 per meter square, what will be the cost of tiling the base of the swimming pool? c) Find the volume of water the rectangular swimming pool can hold? d) What is the lateral surface area (four walls) of the swimming pool?

ANSWERS					
Q1.	$2x^2 + 13xy - 9y$	**Q2.**	$11x^4 - 3x^3 - 5x^2 - 4x$	**Q3.**	a)$\frac{a^2b^2x^5y}{25}$ b)$7p^3q^2 - 63p^4q^3$
Q4.	$(2x^2 - 3x - 35)$	**Q5.**	100	**Q6.**	$9y^4 + 12y^2 - 45$
Q7.	$4x^4y^4$	**Q8.**	7	**Q9.**	a) 9991 b) 10506 c) 9604
Q10.	$i)p^4 + q^4r^2$	**Q10.**	ii)$48xy^2$	**Q11.**	$8p^2 - 7pq - 6pr - 2qr + 3q^2$
Q12.	150	**Q13.**	i)$\frac{4}{25}p^2 + \frac{12}{5}p + 9$	**Q13.**	ii)$4x^2 - 81y^2$
Q13.	iii)$\frac{x^2}{4} - \frac{3xy}{4} + \frac{9y^2}{16}$	**Q13.**	iv)$y^2 - 2y - 35$	**Q13.**	v) $x^2 - 24x + 119$
Q13.	vi) $m^2 + 27m + 180$	**Q14.**	verify	**Q15.**	i)$4n^2 - 25$
Q15.	ii) ₹$60n^2 - 375$	**Q15.**	iii)$16m^2n^3 - 100m^2n$	**Q15.**	iv)$32m^2n^2$