



# INDIAN SCHOOL AL WADI AL KABIR

Class VIII, Mathematics (2022-23)

Worksheet - DTQ

## ALGEBRAIC EXPRESSIONS & IDENTITIES

### SHORT ANSWER TYPE QUESTIONS- 7 QUESTIONS. (2 Marks each)

<b>Q1.</b>	Find the product using suitable identity: $(3x + 5y)(3x - 5y)$
<b>Q2.</b>	Find the sum of: $7x^2 - 4xy + 8y^2 + 16$ ; $3xy + 4x^2 + 3y^2 - 11$
<b>Q3.</b>	Subtract $3x^2 + 4x^2y - 5xy^2 - y^2$ from $5y^2 + 8x^2 + 4x^2y - 7xy^2$
<b>Q4.</b>	Find the product of the following: $21x^2yz[3xy^2 + 2y^2z - 11xyz]$
<b>Q5.</b>	The product of $14a^2b^2c$ , $-23abc$ and $-6bc$ is:
<b>Q6.</b>	Simplify and evaluate: $2p(3p - 2) - 2(q - 2p) + 5$ for $p = 2$ and $q = 1$
<b>Q7.</b>	If the length, breadth and height of a cuboid are as follows: $a^3b^2$ , $-5a^2b$ & $(-3b)$ . Find the volume of the cuboid.

### SHORT ANSWER TYPE- 5 QUESTIONS. (3 Marks each)

<b>Q8.</b>	Find the product: a) $(2x + y^2) \times (5 + 3xy)$ b) $(x - 3xy) \times (x^2 + 3y^2 - xy)$
<b>Q9.</b>	Simplify and find the value of the expression when $x = 2$ : $(x^2 - 3x + 2)(5x - 2) - 2x(3x^2 + 4x - 5)$
<b>Q10.</b>	Simplify: $(x + y^2)(x^2 - y) + (y - x^2)(x + y) - x^2y^2$
<b>Q11.</b>	Use suitable identity to find the product: a) $(3m + 2n^3)(3m + 2n^3)$ b) $(x^3 - y^4)(x^3 - y^4)$ c) $(2a^2 + 5)(2a^2 - 9)$
<b>Q12.</b>	Use suitable identities and evaluate: a) $102 \times 98$ b) $202^2$ c) $78^2 - 22^2$

**LONG ANSWER TYPE- 3 QUESTIONS. (4 Marks each)**

<b>Q13.</b>	<p>Show that:</p> <p>a) <math>(7m + 5n)^2 - (7m - 5n)^2 = 140mn</math></p> <p>b) <math>(23a - 34b)^2 + ab = 49a^2 + 916b^2</math></p>
<b>Q14.</b>	<p>Simplify:</p> <p>a) <math>(m^2 - n^2m)^2 + 2m^3n^2</math></p> <p>b) <math>(4xy + 3y)^2 - (4xy - 3y)^2</math></p>
<b>Q15.</b>	<p>Read the given situation and answer the following:</p> <p>Jack is designing a rectangular swimming pool of length <math>7a^2b</math> metre, breadth <math>3ab^2</math> metre and height <math>2ab</math> metre. The pool has a square tile of side <math>2bc</math> metre in the centre of the base.</p> <p>a) What is the area of the square tile in the Centre of the pool?</p> <p>b) Find the volume of the rectangular swimming pool?</p> <p>c) What is the base area of the swimming pool?</p> <p>d) What is the lateral surface area (four walls) of the swimming pool?</p>

**ANSWERS**

<b>Q1.</b>	$9x^2 - 25y^2$	<b>Q2.</b>	$11x^2 - xy + 11y^2 + 5$	<b>Q3.</b>	$6y^2 + 5x^2 - 2xy^2$
<b>Q4.</b>	$63x^3y^3z + 42x^2y^3z^2 - 231x^3y^2z^2$	<b>Q5.</b>	$1932a^3b^4c^3$	<b>Q6.</b>	25
<b>Q7.</b>	$15a^5b^4$	<b>Q8.</b>	$10x + 6x^2y + 5y^2 + 3xy^3$	<b>Q9.</b>	(-80)
<b>Q10.</b>	$y^2 - y^3 - x^2y$	<b>Q11.</b>	a) $9m^2 + 12mn^3 + 4n^6$ b) $x^6 - 2x^3y^4 + y^{12}$	<b>Q12.</b>	a)9996 b)40804 c)5600
<b>Q13.</b>		<b>Q14.</b>	a) $m^2 - n^4m^2$ b) $48xy^2$	<b>Q15.</b>	a) $4b^2c^2$ b) $42a^4b^4$ c) $21a^3b^3$ d) $4a^2b^2(7a + 3b)$