INDIAN SCHOOL AL WADI AL KABIR

Class VIII, Mathematics (2024-25)

WORKSHEET- ALGEBRAIC EXPRESSIONS AND IDENTITIES(MCQ)

Multiple Choice questions

Q.1.	The expansion of $\left(\frac{3x}{5}+\frac{5y}{4}\right)\left(\frac{3x}{5}+\frac{5y}{4}\right)$ using suitable identity is							
	A	$\frac{9x^2}{25}-\frac{25y^2}{16}$	B	$\frac{9x^2}{25}+\frac{25y^2}{16}$	C	$\frac{9x^2}{25}+\frac{3xy}{2}+\frac{25y^2}{16}$	D	$\frac{9x^2}{25}-\frac{3xy}{2}+\frac{25y^2}{16}$
Q.2.	The sum of $a-b+ab, b+c-bc$ and $c-a-ac$ is							
	A	$2c+ab-ac-bc$	B	$2c-ab-ac-bc$	C	$2c+ab+ac+bc$	D	$2c-ab+ac+bc$
Q.3.	The product of $-xz$ and $x^2+y^2+z^2$is							
	A	$x^3z-xy^2z-xz^3$	B	$-x^3z-xy^2z-xz^3$	C	$-x^3z+xy^2z-xz^3$	D	$-x^3z-xy^2z+xz^3$
Q.4.	The volume of a rectangular box of dimensions $2m^2n, 6mn$ and $4mn^2$is							
	A	$48m^4n^4$	B	$48m^4n^3$	C	$48m^3n^4$	D	$48m^3n^3$
Q.5.	The product of $(2x+5y)(2x-5y)$							
	A	$4x^2-10y^2$	B	$4x^2-25y^2$	C	$4x^2+25y^2$	D	$4x^2+10y^2$
Q.6.	The product of $\frac{3}{4}x^2y^2z, \frac{1}{3}xyz$ and $-6yz$							
	A	$\frac{-2}{3}x^3y^4z^3$	B	$\frac{2}{3}x^3y^4z^3$	C	$\frac{3}{2}x^4y^3z^3$	D	$\frac{-3}{2}x^3y^4z^3$
Q.7.	On simplification $(2x+3y)^2-(2x-3y)^2$, we get							
	A	$4x^2-7y^2$	B	$4x^2-6y^2$	C	$24xy$	D	$5xy$
Q8.	Subtract $2x^3-3x^2-10x+4$ from $5x^3+2x^2-7x-8$							
	A	$3x^3-3x^2-10x+12$	B	$3x^3+5x^2+3x-12$	C	$7x^3-3x^2-10x+4$	D	$2x^3-5x^2-10x-4$

Q9	Add $xy^2z^2 + 3x^2y^2z - 4x^2yz^2, -9x^2y^2z + 3xy^2z^2 + x^2yz^2$							
	A	$-8xy^2z^2 + 6x^2y^2z - 3x^2yz^2$	B	$4xy^2z^2 - 13x^2y^2z - 4x^2yz^2$	C	$6xy^2z^2 - 4x^2y^2z - 3x^2yz^2$	D	$4xy^2z^2 - 6x^2y^2z - 3x^2yz^2$
Q10	Simplify and find the value of the expression $3x(2x-7) - 3(x-4) - 63$ for x = -2 is							
	A	21	B	12	C	51	D	48

SOURCE BASED QUESTION

In a small town, there is a group of students from St Paul's School. The Mathematics teacher Ms. Madhumita, has given students a challenge to find the area of three unique gardens A, B and C and to compare these three gardens to determine which one has the largest area.

To complete this challenge, the students need to apply their knowledge of simplification of algebraic expressions. The area of each garden is as follows:

Garden A: The product of $(x^2 + 5x + 7)$ and $(x + 2)$

Garden B: The product of $(5 - 2x)(3 + x)$

Garden C: Simplify $2(4x + 1)(3x - 2) + 6x$

Q11	Area of garden A can be written as							
	A	$x^3 + 7x^2 + 17x + 9$	B	$x^3 + 7x^2 + 17x + 14$	C	$x^3 - 7x^2 + 17x + 14$	D	$x^3 + 7x^2 - 17x - 9$
Q12	Area of garden B can be written as							
	A	$8 - x - 2x^2$	B	$2 - x - 2x^2$	C	$15 - x - 2x^2$	D	$15 - x + 2x^2$
Q13	Simplify $2(4x + 1)(3x - 2) + 6x$							
	A	$24x^2 - 4x - 4$	B	$24x^2 + 4x - 4$	C	$24x^2 - 4x + 4$	D	$24x^2 + 4x + 4$
Q14	The sum of the areas of Garden A and Garden B.							
	A	$x^3 - 5x^2 - 16x - 29$	B	$x^3 + 5x^2 - 16x - 29$	C	$x^3 + 5x^2 + 16x - 29$	D	$x^3 + 5x^2 + 16x + 29$
Q15	Subtract $3pq(p-q)$ from $2pq(p+q)$							
	A	$p^2q + 5pq^2$	B	$p^2q - 5pq^2$	C	$-p^2q - 5pq^2$	D	$-p^2q + 5pq^2$

	CASE STUDY: A playground is in shape of a square. The area of the square PQRS is 256 m^2 with each side (x + 2) m. One day Suraj along with his two friends Ajay and Aman went to play there with bicycle. Someone stole Suraj bicycle, but Ajay and Aman helped him by contributing ₹(4a + 60) and ₹(6a + 10) respectively, to buy a new bicycle. The cost of bicycle was ₹4200. On basis of this information given in passage answer following questions.
Q 16	Find the value of x.
Q 17	Find the side of square-shaped ground?
Q 18	What is the value of a?
Q 19	What was the amount given by Ajay and Aman to Suraj?
Q 20	What is the perimeter of the playground?

ANSWERS

1.	C	2.	A	3.	B	4.	A
5.	B	6.	D	7.	C	8.	B
9.	D	10.	A	11.	B	12.	C
13.	A	14.	D	15.	D	16.	14m
17.	16m	18.	413	19.	₹1712, ₹2488	20.	64m