POLYNOMIAL

Maths Algebraic Polynomial Worksheet for MAH MCA CET 2025

For students preparing for MCA Entrance Exam

1.The value of k for which (x – 1) is a factor of $9x^2 + kx – 18$ is_____.

A. 9
B. 5
C. -9
D. 0

2. The remainder when $x^4 – y^4$ is divided by x – y is _____.

A. 0
B. x + y
C. $x^2 - y^2$
D. $2y^4$

3. 3. If $x^{21} + 101$ is divided by x + 1, then the remainder is

A. –1
B. 102
C. 0
D. 100

4. if $x = \frac{a-b}{a+b}, y = \frac{b-c}{b+c}, z = \frac{c-a}{c+a}$ then the value of $\frac{(1+x)(1+y)(1+z)}{(1-x)(1-y)(1-z)}$ is _____.

A. abc
B. $a^2b^2c^2$
C. 1
D. -1

5. If (x + 2) and (x – 1) are factors of $(x^3 + 10x^2 + mx + n)$, then the value of m, n respectively are _____.

A. -5, 5
B. 7,18
C. 7, -18
D. -5, -18

6. Given that x = –4 is a solution of $x^3 – x^2 – 14x + 24 = 0$. The other solutions are _____.

A. 1,3
B. 2,3
C. 1,4
D. 2,5

7. $(a + b) (a – b) (a^2 – ab + b^2) (a^2 + ab + b^2)$ is equal to _____.

A. $a^6 + b^6$
B. $a^6 – b^6$
C. $a^3 – b^3$
D. $a^3 + b^3$

8. The value of $(x – a)^3 + (x – b)^3 + (x – c)^3 –3(x – a) (x – b) (x – c)$, when a + b + c = 3x is _____.

A. 3
B. 2
C. 1
D. 0

9. value of R, if $\frac{a^2-19a-25}{a-7} = a - 12 + \frac{R}{a-7}$ is _____.

A. -109
B. -88
C. -84
D. -64

10. When $(x^3 – 2x^2 + px – q)$ is divided by $(x^2 – 2x – 3)$, the remainder is (x – 6). The values of p and q respectively are _____.

A. -2, -6
B. 2, -6
C. -2, -6
D. 2, 6

11. Find the remainder when the expression $x^3 + x^2 + x + 1$ is divided by x + 1.

A. 3
B. 5
C. 2
D. 0

12. If $x^2 - 1$ is a factor of $ax^4 + bx^3 + cx^2 + dx + e$, then
A. a + b + e = c + d
B. a + b + c = d + e
C. b + c + d = a + e
D. None of these

13. If a, b, c are all non-zeroes and a + b + c = 0, then $\frac{a^2}{bc} + \frac{b^2}{ca} + \frac{c^2}{ab} =$ _____.
A. 0
B. 1
C. 2
D. 3

14. Length, breadth and height of a cuboidal tank are (2x – y) m, (2x + y) m and $(4x^2 + y^2)$ m respectively. Find the volume of the tank.
A. $(4x^3 + 12xy + y^3)$ m^3
B. $(4x^4 + 12x^2y^2 + y^4)$ m^3
C. $(16x^4 - y^4)$ m^3
D. $(16x^4 + y^4)$ m^3

15. A rectangular field has an area $(14x^2 - 11x - 15)$ m^2. What could be the possible expression for length and breadth of the field?
A. (3x – 2) m and (5x + 8) m
B. (7x + 5) m and (2x – 3) m
C. Both (A) and (B)
D. None of these

16. Area of a rectangular field is $(2x^3 - 11x^2 - 4x + 5)$ sq. units and side of a square field is $(2x^2 + 4)$ units. Find the difference between their areas (in sq. units).
A. $4x^4 - 2x^3 - 27x^2 - 4x + 11$
B. $4x^4 - 2x^3 + 27x^2 + 4x + 11$
C. $4x^4 + 27x^2 + 4x - 11$
D. $4x^4 + 2x^3 + 27x^2 + 4x + 11$

17. Vikas has ₹ $(x^3 + 2ax + b)$, with this money he can buy exactly (x – 1) jeans or (x + 1) shirts with no money left. How much money Vikas has, if x = 4?
A. ₹ 80
B. ₹120
C. ₹30
D. ₹60

18. If $(5x^2 + 14x + 2)^2 - (4x^2 - 5x + 7)^2$ is divided by $(x^2 + x + 1)$, then quotient 'q' and remainder 'r' respectively, are _____.
A. $(x^2 + 19x - 5)$, 0
B. $9(x^2 + 19x - 5)$, 0
C. $(x^2 + 19x - 5)$, 1
D. $9(x^2 + 19x - 5)$, 1

19. The expression $ax^3 + 3x^2 + bx + 3$, where a and b are constants, has a factor of (x + 3) and leaves a remainder 12 when divided by x + 1. Find the value of a and b respectively.
A. 2 and -8
B. –2 and 8
C. 2 and 8
D. -2 and -8

20. study the given statements carefully.
Statement – I:
$$\frac{(a^2 - b^2)^3 + (b^2 - c^2)^3 + (c^2 - a^2)^3}{(a+b)^3 + (b+c)^3 + (c+a)^3} = (a + b)(b + c)(c + a)$$
Statement – II:
$a^2 + b^2 + c^2 - ab - bc - ca = \frac{1}{2}[(a-b)^2 + (b-c)^2 + (c-a)^2]$

Which of the following options holds?
A. Both Statement-I and Statement-II are true.
B. Statement-I is true but Statement-II is false.
C. Statement-I is false but Statement-II is true.
D. Both Statement-I and Statement-II are false.

Answer Key

1. A	2. A	3. D	4. C	5. C	6. B	7. B	8. D	9. A	10. C
11. D	12. D	13. D	14. C	15. B	16. B	17. D	18. B	19. A	20. C