

Factor Theorem

1. $(x-a)$ is a factor of polynomial $p(x)$, remainder is
 a) 0 b) a c) x d) $x-a$
2. $(x-a)$ is a common factor of polynomial $f(x)$ and $g(x)$ then
 a) $f(x)=g(x)$ b) $f(x)=0$ c) $f(x) \neq g(x)$ d) not defined
3. If $f(-2)=10$ then $f(x)$ is not $(x+2)$.
 a) Factor b) divisible by c) option (a) & (b) d) none of these
4. $f(x) = 3x^2 - kx + 6$ has 2 as one factor then $k = \dots$
 (a) 6 (b) 9 (c) 0 (d) 10
5. _____ the remainder when $2x^3 - 3x^2 + 7x - 8$ is divided by $x - 1$.
 (a) 2 (b) 0 (c) -2 (d) 10
6. If $(x - a)$ is a factor of $x^3 - a^2x + x + 2$, $a = ?$
 (a) 2 (b) 3 (c) 1 (d) -2
7. If on dividing $2x^3 + 3x^2 - kx + 5$ by $x - 2$, leaves a remainder 7, $k = ?$
 (a) 12.5 (b) 21 (c) 13 (d) 42
8. $(x - 2)$ is a factor of $x^3 + 2x^2 - kx + 10$, $k = ?$
 (a) - 12 (b) 13 (c) - 13 (d) 16
9. If $p(x) = x^2 - 2\sqrt{2}x + 1$, the value of $p(2\sqrt{2}) = ?$
 (a) 0 (b) 1 (c) -1 (d) $4\sqrt{2}$
10. If $f(x) = x - 9$, then the value of $f(x) - f(-x) = ?$
 (a) $-2x$ (b) x (c) 18 (d) 0
11. If $f(x) = x^2 - 9$, then the value of $f(x) - f(-x)$
 (a) $-2x$ (b) x (c) 18 (d) 0

2 marks

12. If the polynomials $2x^3 + ax^2 + 3x - 5$ and $x^3 + x^2 - 2x + a$ leave the same remainder when divided by $x - 2$, find the value of a .
 (a) 11 (b) 3 (c) -3 (d) 5
13. If both $x - 2$ and $x - \frac{1}{2}$ are factors of $px^2 + 5x + r$
 (a) $p+r=1$ (b) $p-r=1$ (c) $p = r$ (d) $p \neq r$
14. If $x^{100} + 2x^{99} + k$ is divisible by $(x + 1)$, then the value of k .
 (a) 1 (b) -1 (c) 0 (d) 10

15. $f(x) = x^3 + x^2 + 3x + 115$, factor $f(x)$
 (a) 5 (b) -5 (c) 3 (d) -3
16. If $x^2 + px - 30 = (x - 5)(x + 6)$, then $p =$
 a) 1 b) -1 c) 11 d) -11
17. Find 'a' if the two polynomials $ax^3 + 3x^2 - 9$ and $2x^3 + 4x + a$ leave the same remainder when divided by $x + 3$.
 a) 4 b) 3 c) 2 d) -3
18. If $(x - 2)$ is a factor of the expression $x^3 + ax^2 + bx + 6$. When this expression is divided by $(x - 3)$, it leaves the remainder 3.
 Find the values of a and b.
 (a) $a = 4, b = 1$ (b) $a = 4, b = -1$ (c) $a = 4, b = 2$ (d) $a = -1, b = 4$
19. If $(x + 2)$ and $(x - 3)$ are factors of $x^3 + ax + b$, then $a + b = ?$
 (a) -12 (b) 13 (c) 12 (d) -13
20. Find the value of 'a' if the division of $ax^3 + 9x^2 = 4x - 10$ by $(x + 3)$ leaves a remainder of 5.
 (a) 2 (b) -2 (c) 3 (d) -3

4 Marks

21. $p(x) = 2x^3 - x^2 - px - 2$
 i) find p if $(x - 2)$ is a factor of $p(x)$
 (a) 2 (b) 3 (c) 5 (d) 4
 ii) Complete $p(x)$
 (a) $2x^3 - x^2 - 5x - 2$ (b) $2x^3 - x^2 - 4x - 2$
 (c) $2x^3 - x^2 - 3x - 2$ (d) $2x^3 - x^2 - 2x - 2$
 iii) $p(x)$ divided by the factor of (i), then quotient is...
 (a) $2x^2 - 3x - 1$ (b) $2x^2 + 3x + 1$
 (c) $2x^2 - 3x + 1$ (d) $4x^2 - 1$
 iv) other two factors of $p(x)$
 (a) $(x + 1), (2x - 1)$ (b) $(x + 1), (2x + 1)$
 (c) $(x - 1), (2x - 1)$ (d) $(2x + 1), (2x - 1)$
22. $p(x) = x^3 + 7x^2 + 14x + 3$
 i) what should be added to $p(x)$ that the result is completely divisible by $(x + 3)$
 (a) 4 (b) -3 (c) -4 (d) 3
 ii) then resultant $p(x) =$
 (a) $x^3 + 7x^2 + 14x + 7$ (b) $x^3 + 7x^2 + 14x - 1$
 (c) $x^3 + 7x^2 + 14x + 0$ (d) $x^3 + 7x^2 + 14x + 6$
 ii) $P(x)$ is divided by $(x + 3)$ then
 (a) $x^2 + 4x + 2$ (b) $x^2 + 4x - 2$
 (c) $x^2 - 4x + 2$ (d) none of these

iv) other factors of $p(x)$ is

- a) $(x+2), (x-2)$ (b) $(x-1), (x+2)$
b) $(x-1), (x-2)$ (d) not defined

1	b	2	a	3	c	4	b	5	c
6	d	7	c	8	b	9	b	10	a
11	d	12	c	13	c	14	b	15	b
16	a	17	b	18	b	19	d	20	a
21 i	c	21 ii	a	21 iii	b	21 iv	b		
22 i	d	22 ii	d	22 iii	a	22 iv	d		