IITJEE Foundation Practice paper

POLYNOMIALS

class-9-Mathematics Number of Questions: 57

For Answers and Solutions, Go to www.micromerits.com

1

Which of the following is a polynomial

○ $3\sqrt{x}+5$ ○ $x^3+x\sqrt{x}+5$ ○ $x^2+\sqrt{3}x+5$ ○ None

2

If $(x-2)$ is a factor of the polynomial $p(x)=x^3-5x^2+kx+4$ then the value of k is

○ 1 ○ 2 ○ 3 ○ 4

3

If $(x+1)$ is a factor of the polynomial $p(x)=(x-1)(2x^2+4x+p)$ then the value of 'p' is

○ 1 ○ 2 ○ 3 ○ 4

4

If $(x-1)\ \ and\ \ (x-2)$ are the factors of the polynomial $p(x)=(x-1)(x^2-kx+2)$, then the value of $'k'$ is

○ 1 ○ 2 ○ 3 ○ 4

5

If$(x-k)$ is a factor of the polynomial$p(x)=x^2-kx+k-2$

then the value of $'k'$ is

1 2 3 4

6

If $(x+1)$ is a factor of the polynomial $p(x) = x^2 + px + q$ and $p + q = 3$ then the values of $p\ and\ q$ are

p=2 and q=3 p=2 and q=1 p=-2 and q=1 p=2 and q=-1

7

The degree of the polynomial $5x^5 + 7x^3 - 15x + 16$ is

1 6 5 8

8

The degree of the polynomial $25x^{12} - 17x^8 - 15x + 16x^6$ is

1 12 8 6

9

The degree of the polynomial $\sqrt{26}x^5 + 7\sqrt{7}x^9 - 15x^3 + 16x$ is

7 18 5 9

10

The degree of the polynomial $5x^{10} + \frac{7}{2}x^5 - \sqrt{15}x + 623$ is

5 7 10 9

11

Verify for which of the polynomials $(x-1)$ is a factor

○ x^2-1 ○ x^2+1 ○ x^4+1 ○ x+9

12

Verify for which of the polynomials $(x+1)$ is a factor

○ x^2+1 ○ x^3+1 ○ x^4+1 ○ x+5

13

If $p(x)=x^3+6x^2+5x-24$ then $p(-1)$=

○ 24 ○ 30 ○ 5 ○ -24

14

$x=2$ is a zero of the polynomial $2x^2+3x-p$, then the value of p is

○ 1 ○ 12 ○ 14 ○ 23

15

If $p(x)=2x^2-5x+2$ then $p(2)$ is equal to

○ 1 ○ -1 ○ -8 ○ 0

16

If $p(x)=2x+5$ then the zero of $p(x)$ is

○ 0 ○ 2 ○ 5 ○ $\frac{-5}{2}$

17

If $p(x)=2x-10$ then the zero of $p(x)$ is

○ 1 ○ -10 ○ -5 ○ 5

18

If $p(x)=x^3+6x^2+5x-24$ then $p(1)=?$

○ 12 ○ 24 ○ -12 ○ -24

19

If $f(x) = 5x^2 + x - 18$ has $(5x - 9)$ as a linear factor, then other linear factor is

○ $5x + 9$ ○ $x + 2$ ○ $x - 2$ ○ None

20

If $x + 3$ is a factor of $f(x) = x^3 + qx - 4x - 12$ then the value of q is

○ 3 ○ -3 ○ 9 ○ -9

21

$\sqrt{2}$ is a polynomial of degree

○ 0 ○ 1 ○ -1 ○ None

22

$f(x) = x^3 - 1$ has a quadratic factor $x^2 + x + 1$ then the linear factor is

○ $x - 2$ ○ $x + 1$ ○ $x - 1$ ○ $x + 5$

23

The degree of the polynomial $\sqrt{5}x^5 - \frac{1}{7}x^3 + 5x + 16$ is

○ $\sqrt{5}$ ○ $\frac{1}{7}$ ○ 16 ○ 5

24

Find zero of the polynomial $y^2 - 1$

○ ± 1 ○ 1 ○ -1 ○ 2

25

If $p(x) = x^2 - 2\sqrt{2}x + 1$, then $p(2\sqrt{2}) = ?$

○ 1 ○ 8 ○ 19 ○ 17

26

If $p(x) = x^2 - 5x+1$ is divided by $(x + 1)$ then the remainder is

25 26 7 1

27

If $(x + 1)$ is a factor of the polynomial $2x^2 + kx$, then the value of k is

-1 1 2 None

28

Zero of the polynomial $p(x) = 7x - 21$ is

1 2 3 4

29

One of the factors of $(25x^2 - 1) + (1 + 5x)^2$ is

$5x + 2$ $5x + 1$ $5x - 20$ None

30

What would the result of factorization of $a^2 + b - ab - a$

$(a + b)(a - b)$ $(a - 1)(a - b)$ $(a - 1)(a + b)$ $(a - 2)(a - b)$

31

One of the linear factor of the polynomial $2x^2 + 9x - 5$ is

$2x + 1$ $2x + 5$ $x + 5$ $x - 5$

32

If$x^2 + px + 6 = (x + 2)(x + 3)$ then p = ?

1 3 5 7

33

If $a+b+c=0$ then $a^3+b^3+c^3=?$

abc 2abc 3abc 0

34

Find the value of $'k'$ for which $(x^4-k^2x+3-k)\div(x-3)$ has a remainder 4

$k=\frac{16}{3}$ or $k=-5$ $k=\frac{-16}{3}$ or $k=5$ $k=\frac{16}{3}$ or $k=5$ $k=\frac{-16}{3}$ or $k=-5$

35

If $49x^2-b=(7x+\frac{1}{2})(7x-\frac{1}{2})$, then $b=?$

$b=\frac{1}{2}$ $b=\frac{1}{4}$ $b=\frac{1}{8}$ $b=\frac{1}{49}$

36

The coefficient of x^2 in $(3x^2-5)(4+4x^2)$ is

20 25 8 -8

37

For what value of k is the polynomial $p(x)=2x^3-kx^2+3x+10$ is exactly divisible by $(x+2)$

1 3 -2 -3

38

Zero of the polynomial $p(x)=ax^3$ is

$x=1$ $x=0$ $x=3$ None

39

The polynomials $p(x)=ax^3+3x^2-3$ and $q(x)=2x^3-5x+a$ leaves the same remainder when divided by $x-4$. Find $'a'?$

0 1 -1 None

40

If $p(x) = x^2 - 4x + 3$, evaluate

$p(2) - p(-1) + p\left(\frac{1}{2}\right)$

$\frac{31}{4}$ $\frac{-31}{4}$ $\frac{-31}{2}$ 0

41

Find $p(0), p(1)$ and $p(2)$ for polynomial $p(y) = y^2 - y + 1$

1,1 and 3 1,1 and 5 1,8 and 3 None

42

Find $p(0), p(1)$ and $p(2)$ where $p(t) = 2 + t + 2t^2 - t^3$

2,4 and 8 2,2 and 4 2,4 and 4 None

43

Find $p(0), p(1)$ and $p(2)$ for the polynomial $(x - 1)(x + 1)$

-1,0 and 5 -1,0 and 3 1,0 and 3 None

44

Find $p(0), p(1)$ and $p(2)$ for the polynomial x^3

0,1 and 4 0,3 and 8 0,1 and 8 None

45

Find value of the polynomial $5x - 4x^2 - 3$ at $x = -2$

9 -19 -29 -12

46

Find value of the polynomial $7x - 4x^2 + 3$ at $x = -3$

20 -24 -34 -54

47

Degree of $3x^2y^{p-1}z^4$ is 7 then value of p $=?$

○ 2 ○ 3 ○ 4 ○ 1

48

Find the remainder when $x^4+x^3-2x^2+x+1$ is divided by $x-1$

○ 1 ○ 2 ○ 3 ○ 5

49

Find the remainder when x^3-ax^2+6x-a is divided by $x-a$

○ $2a$ ○ $3a$ ○ $4a$ ○ $5a$

50

One of the factors of $8x^3+y^3+27z^3-18xyz$ is ____

○ $2x+y+3z$ ○ $x+y+z$ ○ $3x+y$ ○ $x+y+z$

51

If $a+b+c=0$ then $\dfrac{a^3+b^3+c^3}{abc}=?$

○ abc ○ $3abc$ ○ 3 ○ 0

52

$$\frac{(x^2-y^2)^3+(y^2-z^2)^3+(z^2-x^2)^3}{(x-y)^3+(y-z)^3+(z-x)^3}=?$$

○ $(x+y)(y+z)(z+x)$ ○ $(x-y)(y-z)(z-x)$ ○ 1 ○ 0

53

If $a+b+c=0$ then $\frac{a^2}{bc}+\frac{b^2}{ca}+\frac{c^2}{ab}=?$

○ 1 ○ 2 ○ 3 ○ 4

54

One of the factors of $27y^3+125x^3$

○ $3y+5x$ ○ $x+y$ ○ $x+zy$ ○ $x-y$

55

One of the factors of x^3+3x^2+4x-8 is

○ $x+1$ ○ $x-2$ ○ $x-1$ ○ $x+3$

56

Factorize the equation $\frac{a^2}{b^2}+2+\frac{b^2}{a^2}$

○ $\left(\frac{a}{b}+\frac{b}{a}\right)^2$ ○ $\left(\frac{a}{b}+2\right)^2$ ○ $\left(\frac{a}{b}-1\right)^2$ ○ $\left(\frac{a}{b}+\frac{a}{b}\right)^2$

57

Factorize the equation $x^2+5\sqrt{5}x+30$

○ $(x+2\sqrt{5})(x+3\sqrt{5})$ ○ $(x+5)(x+6)$ ○ $(x-6)(x+5)$ ○ $(x-3)(x+10)$

Helps students to score very good marks in their board exams. Also useful for students taking part in various competitions like NTSE, Olympiads, KVPY and for future JEE/NEET exams