



MATHS

BOOKS - CBSE COMPLEMENTARY MATERIAL MATHS

(HINGLISH)

POLYNOMIALS

Very Short Answer Type Questions

1. Find $ax^p + bx^q + c$ to be polynomial p & q are:

A. Rational Numbers

B. Natural Numbers

C. Real Numbers

D. Whole Numbers

Answer:



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2. Which of the following is/are polynomial (s):

A. $\sqrt{7}x + 5$

B. $\sqrt{7}x + 5$

C. $\frac{\sqrt{7}x + 5}{\sqrt{7}x - 5}$

D. $\frac{5x^{5/2} + 3x^{3/2}}{x}$

Answer:



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3. Choose the correct option for a polynomial:

(i) $3x+2$ (ii) $7x+1=0$

(iii) $5x^4 + 3x^2 + 1 = 0$ (iv) $x^3 + 3x^2 + 1$

A. I amd ii

B. I & iii

C. ii & iv

D. I & iv

Answer:



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4. The terms of the polynomial $x^3 - 4x^2 - 3x + 2$ are:

A. 1,-4,-3,2

B. $x^3 - 4x^2 - 3x + 2$

C. $+x^3, -4x^2, -3x, 2$

D. $x^3, 4x^2, 3x, 2$

Answer: B::C::D



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5. Coefficient of x^2 in $(x^2 - 1)(x - 2)$ is

A. 2

B. -2

C. -1

D. $+1$

Answer: B

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6. The degree of the polynomial $\sqrt{5}$ is :

A. $1/2$

B. 0

C. 1

D. -1

Answer:

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7. If $\deg(f(x))=5$ & $\deg(g(x))=4$ then $\deg[f(x)-g(x)]$ is

A. 5

B. 4

C. 1

D. 9

Answer:



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8. Degree of cubic polynomial in two terms is :

A. 0

B. 1

C. 2

D. 3

Answer: C

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9. Degree of the zero polynomial is

A. 0

B. 1

C. 2

D. Not defined

Answer: D

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10. Degree of non zero constant polynomial is -

A. 0

B. 1

C. -1

D. Not defined

Answer:



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11. The zero (s) of the polynomial $x^2 - 8$ is (are):-

A. 8

B. $2\sqrt{2}$

C. $2\sqrt{2}, -2\sqrt{2}$

D. $\sqrt{8}$

Answer: B



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12. The zero (s) of the polynomial $z^2 - 2z$ is (are):-

A. 0

B. 2z

C. 2

D. 0,2

Answer: B



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13. If $(px+q)$ is a factor of the polynomial $h(x)$ then which one is true:

A. $h\left(\frac{-p}{q}\right) = 0$

B. $h\left(\frac{p}{q}\right) = 0$

C. $h\left(\frac{q}{p}\right) = 0$

D. $h\left(\frac{-q}{p}\right) = 0$

Answer:

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14. Let $h(x)$ be a polynomial such that $h\left(-\frac{1}{3}\right) = 0$, then one of the factors of $h(x)$ is

A. $3x-1$

B. $3x+1$

C. $x-3$

D. $x+3$

Answer: A::C



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15. If $y+2m$ is a factor of $y^5 - 4m^2y^3 + 2y + 2m + 3$ then value of is-

A. $\frac{2}{3}$

B. $\frac{3}{2}$

C. 1

D. $\frac{-3}{2}$

Answer: B::C::D



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16. If $\left(\frac{1}{16}p^2 - q\right) = \left(\frac{1}{4}p - 11\right)\left(\frac{1}{4}p + 11\right)$ then q is

A. 11

B. 1

C. 121

D. $\frac{11}{4}$

Answer: A::B



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17. If $3x = a + b + c$, then the value of $(x - a)^3 + (x - b)^3 + (x - c)^3 - 3(x - a)(x - b)(x - c)$ is $a + b + c$ (b) $(a - b)(b - c)(c - a)$ 0 (d) None of these

A. $a+b+c$

B. 0

C. 1

D. $3(x-a)(x-b)(x-c)$

Answer:



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18. If $p+q+r=9$ then $(3-p)^3 + (3-q)^3 + (3-r)^3$ is :

A. $3(3-p)(3-q)(3-r)$

B. 0

C. 1

D. $-3(3-p)(3-q)(3-r)$

Answer: C



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19. If $(x - 1)(x - 2) = x^3 + ax^2 + bc + 5 \times 2 \times 1$ then c will be

A. 1

B. 2

C. 5

D. -5

Answer:



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20. If $(x + 2)(x - 5) = x^2 + (a + b)x + a \times b$ then value of

(a+b) is

A. 3

B. -3

C. 7

D. -10

Answer: C

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21. $49^3 - 30^3 + (\dots\dots)^3 = 3 \times 49 \times 30 \times 19$

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22. The polynomial containing two non zero terms is called.....

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23. The polynomial containing exactly two non zero roots, polynomial has degree.....

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24. If $l(x) = 4x + 1$ then $l(-6) - l(-5)$ is.....`

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25. If

$p(x) = x^3 - 2x^2 + x + 1$ then $p(0) \times p(-1) = \dots\dots\dots$

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26. If $p(x) = x^2 - 3x + 2$ then $p(1) + p(-1) - p(0)$ is



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27. If sides of a square is $(x+2y-z)$ units then the area of the square is.....

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28. If $x^2 + mx - 30 = (x - 5)(x + 6)$ then m is

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29. A quadratic polynomial can be written as the product oflinear polynomials.

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30. If the factors of $5x^2 - 18x + 9$ are $(ax+b)$, $(x+b)$ then the value of a & b of are&respectively.

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31. In the polynomial $x^3 - 5x$, the expression x^3 & $5x$ are calledof the polynomial.

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32. When a polynomial $q(x)$ is divided by $(x-2)$ & the remainder $q(2)=0$ then $(x-2)$ is aof the polynomial.

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True False

1. Every polynomial is also an equation.

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2. write whether the following statements are true or false ,
justify Your answer.

(i) A binomial can have atmost two terms.

(ii) Every polynomial is a Binomial .

(iii) A binomial may have degree 5.

(iv) zero of a polynomial is always 0.

(V) A polynomial cannot have more then one zero.

(vi) the degree of the sum of tum polynomals each of degree 5 is
wlways . 5

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3. write whether the following statements are true or false ,
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4. If 2 is a zero of a polynomial $q(x)$ then 2 is also a zero of
 $2 \times q(x)$.

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5. If $(x - a)$ is a factor of polynomial $p(x)$ then a is a zero of $a \times p(x)$. True Or False

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6. True or False $x = 3$ is a zero of the polynomial $x^3 - 3x^2 + x - 3$.

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7. 2, 1 and -1 all are zeroes of $x^2 - x - 2$.

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8. $(x + 1)$ is a factor of $x^n + 1$ only if n is an odd integer (b) n is an even integer n is a negative integer (d) n is a positive integer

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9. When $(p^2 - p - 29)$ is divided by $(p - 6)$ the remainder is 1.

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10. The remainder theorem is true only when the divisor of the polynomial is linear polynomial.

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11. Match the following Column I to Column II

- | Column I | Column II |
|--|-------------------|
| i) Degree of the polynomial
$0.x^4 + 4x^3 - 2x + 3$ | a) $(100-3)^2$ |
| ii) Factors of $(x+y)^2 - (x^2+y^2)$ | b) 0 |
| iii) 97^2 can be solved as | c) 3 |
| iv) Zero (s) of $(x-2)^2 - (x+2)^2$ | d) 3, x, y, (x+y) |



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12. Match the following Column I to Column II

- | Column I | Column II |
|--|----------------|
| i) 103×103 | a) 0 |
| ii) If $\frac{x}{y} + \frac{y}{x} = 2$ then value of
$(x-y)^2$ is | b) 1 |
| iii) Number of zeros of $px + q$ | c) -1 |
| iv) the value of K when $(-x^{140} - 2x^{151} + K)$
is divided by $(x+1)$ | d) $(100+3)^3$ |



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13. Check whether $q(x)$ is a multiple of $r(x)$ or not.

Where $q(x) = 2x^3 - 11x^2 - 4x + 5$, $r(x) = 2x + 1$

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14. Show that $(x-5)$ is a factor of $x^3 - 3x^2 - 4x - 30$.

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15. Evaluate by using suitable identity: $(997)^3$.

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16. Find the zeroes of the polynomial $p(x) = x(x - 2)(x + 3)$

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17. Find the quotient when $3x^2 - 7x - 6$ is divided by $(x-3)$.



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18. Factorize $8x^3 + \sqrt{27}y^3$.



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19. If $p(x) = x + 9$ then find $p(x)+p(-x)$.



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20. Find the product without multiplying directly 106×94 .



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21. Expand using suitable identity $(2x - 3y + z)^2$.

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22. Find the value of $(351)^2 - (350)^2$

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Part C

1. Factorise : $64a^2 + 96ab + 36b^2$

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2. Factorise $x^3 + 6x^2 + 11x + 6$



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3. If $x^2 + y^2 = 49$ and $x - y = 3$, then find the value of $x^3 - y^3$

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4. Simplify

$$(5a - 2b)(25a^2 + 10ab + 4b^2) - (2a + 5b)(4a^2 - 10ab + 25b^2).$$

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5. Find the sum of remainders when $x^3 - 3x^2 + 4x - 4$ is divided by $(x-1)$ and $(x+2)$.

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6. Find the product $\left(p - \frac{1}{p}\right)\left(p + \frac{1}{p}\right)\left(p^2 + \frac{1}{p^2}\right)\left(p^4 + \frac{1}{p^4}\right)$.

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7. Factorise $7\sqrt{2}k^2 - 10k - 4\sqrt{2}$

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8. Simplify: $(3x - 4y)^3 - (3x + 4y)^3$

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9. Use appropriate identity, expand $(2a)^3 + b^3 + (3c)^3 - 18abc$.

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10. Simplify $(x + y + z)^3 - (x - y - z)^2$.



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11. Factorize $125x^3 + 8y^3 + z^3 - 30xyz$.



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12. $x+2$ is a factor of polynomial $ax^3 + bx^2 + x - 2$ and the remainder 4 is obtained on dividing this polynomial by $(x-2)$. Find the value of a and b .



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13. If the polynomials $ax^3 + 4x^2 + 3x - 4$ and $x^3 - 4x + a$ leave the same remainder when divided by $(x - 3)$; find the value of a .

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14. If $\left(\frac{9}{10}\right)^3 - \left(\frac{2}{5}\right)^3 - \left(\frac{1}{2}\right)^3 = \frac{x}{50}$, find x

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15. If $(x - 3)$ and $\left(x - \frac{1}{3}\right)$ are factors of the polynomial $px^2 + 3x + r$, show that $p=r$.

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16. Using identify, find the value of $(-7)^3 + (5)^3 + (2)^3$.



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17. Find the dimensions of cube whose volume is given by the expression. $4x^2 + 14x + 6$.



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18. Given possible expression for the length and breadth of each of the following rectangles if.

(i) Area = $(x^2 + 5\sqrt{5}x + 30)$ sq.unit.

(ii) Area = $(24x^2 - 26x - 8)$ sq. unit



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19. A literacy caompaign was organised by Class IX girl students under NSS. Students made $(x-5)$ row and $(3x-4)$ columns for the

rally. Write the total number of students in the form of a polynomial.

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20. Under tree plantation programme students of Class IX planted total $(3x^2 - 4x - 4)$ trees in school.

If total number of students is the class $(x-2)$ then find out number of tree planted by each students. (Assuing each students planted equal number of trees).

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21.

If $a + b + c = 0$, find the value $\frac{(b + c)^2}{bc} + \frac{(c + a)^2}{ca} + \frac{(a + b)^2}{ab}$

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22. Simplify:
$$\frac{(a^2 - b^2)^3 + (b^2 - c^2)^3 + (c^2 - a^2)^3}{(a - b)^3 + (b - c)^3 + (c - a)^3}$$

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23. Factorise: $(2a - b - c)^3 + (2b - c - a)^3 + (2c - a - b)^3$

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24. If the polynomial $4x^3 - 16x^2 + ax + 7$ is exactly divisible by $x-1$, then find the value of a . Hence factorise the polynomial.

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25. If p, q & r are all non zero and $p+q+r=0$, prove that

$$\frac{p^2}{qr} + \frac{q^2}{rp} + \frac{r^2}{pr} = 3$$

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26. Factorise $9x^3 - 27x^2 - 100x + 300$

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27. If $(x+4)$ is a factor of the polynomial $x^3 - x^2 - 14x + 24$, find the other factors.

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28. $\frac{x}{y} + \frac{y}{x} = -1$ (where, $x, y \neq 0$) then find the value of $x^3 - y^3$

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29.
$$\frac{155 \times 155 + 155 \times 55 + 55 \times 55}{155 \times 155 \times 155 - 55 \times 55 \times 55}$$

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Practice Test

1. Is $(x^2)^{\frac{1}{2}} + 2\sqrt{5}a$ a polynomial?

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2. 1) Check, whether 1 is the zero of the polynomial $9x^3 - 5x + 20$

2) Show that $x = 1$ is a zero of the polynomial

$$3x^3 - 4x^2 + 8x - 7$$

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3. Find the zeroes of the polynomial $x^2 - 4x + 3$

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4. If $x+y+z=6$, $xy+yz+zx=11$. Find the value for $x^2 + y^2 + z^2$.

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5. if $x = \frac{4}{3}$ is a zero of the polynomial $f(x) = 2x^3 - 11x^2 + kx - 20$, find the value of k

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6. Factorize: $a^2 + b^2 + 2(ab + bc + ca)$

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7. If $a + b + c = 0$, then find the value of $\frac{a^2}{bc} + \frac{b^2}{ca} + \frac{c^2}{ab}$

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8. Factorise $x^2 - 23x^2 + 142x - 120$.

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