MATHS

BOOKS - NCERT EXEMPLAR MATHS (HINGLISH)

POLYNOMIALS

Polynomials

1. If -3 is one of the zeroes of the polynomial $(k-1)x^2 + kx + 1$, find the value of k.

A. $\frac{4}{3}$

B. $\frac{-4}{3}$

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

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

Answer: A

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2. A quadratic polynomial, whose zeroes are-3 and 4, is

A. $x^2 - x + 12$

B. $x^2 + x + 12$

C. $\frac{x^2}{2} - \frac{x}{2} - 6$

D. $2x^2 + 2x - 24$

Answer: C

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3. If the zeroes of the quadratic polynomial $x^2 + (a + 1)x + b$ are 2 and -3, then

A. $a = -7, b = -1$

B. $a = 5, b = -1$

C. $a = 2, b = -6$

D. $a = 0, b = -6$

Answer: D

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4. The number of polynomials having zeroes as -2 and 5 is

A. 1

B. 2

C. 3

D. more than 3

Answer: D

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5. If one of the zeroes of the cubic polynomial $ax^3 + bx^2 + cx + d$ is zero, the product of the other two zeroes is

A. $\frac{-c}{a}$

B. $\frac{c}{a}$

C. 0

D. $\frac{-b}{a}$

Answer: B

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6. If one of the zeroes of the cubic polynomial $x^3 + ax^2 + bx + c$ is -1,then find the product of other two zeroes.

A. $b - a + 1$

B. $b - a - 1$

C. $a - b + 1$

D. $a - b - 1$

Answer: A

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7. The zeroes of the quadratic polynomial $x^2 + 99x + 127$ are

A. both positive

B. both negative

C. one positive and one negative

D. both equal

Answer: B

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8. The zeroes of the quadratic polynomial $x^2 + kx + k$ where $k \neq 0$,

A. cannot both be positive

B. cannot both be negative

C. are always unequal

D. are always equal

Answer: A

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9. If the zeroes of the quadratic polynomial $ax^2 + bx + c$, where $c \neq 0$, are equal, then

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10. If one of the zeroes of a quadratic polynomial of the form $x^2 + ax + b$ is the negative of the other, then it

A. has no linear term and the constant term is negative

B. has no linear term and the constant term is positive

C. can have a linear term but the constant term is negative

D. can have a linear term but the constant term is positive

Answer: A

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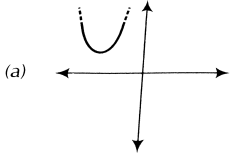
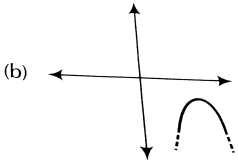
11. Which of the following is not the graph of a quadratic polynomial?

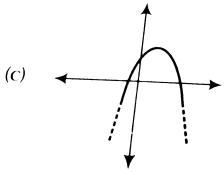
A.



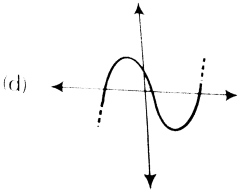
B.



C.



D.



Answer: D

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12. Answer the following and justify.

(i) can $x^2 - 1$ be the quotient on division of $x^6 + 2x^3 + x - 1$ by a polynomial in x of degree 5?

(ii) What will be quotient and remainder be on division of $ax^2 + bx + c$ by $px^3 + qx^2 + rx + s, p \neq 0$?

(iii) If on division of a polynomial $p(x)$ by a polynomial $g(x)$, the quotient is zero, what is the relation between the degree of $p(x)$ and $g(x)$?

(iv) If on division of a non-zero polynomial $p(x)$ by a polynomial $g(x)$, the remainder is

zero, what is the relation between the degrees of $p(x)$ and $g(x)$?

(v) Can be quadratic polynomial $x^2 + kx + k$ have equal zeroes for some odd integer $k > 1$?

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13. Are the following statements 'True' or 'False'? Justify your answer.

(i) If the zeroes of a quadratic polynomial $ax^2 + bx + c$ are both positive, then a,b and c

all have the same sign.

(ii) If the graph of a polynomial intersects the X-axis at only one point, it cannot be a quadratic polynomial.

(iii) If the graph of a polynomial intersects the X-axis at exactly two points, it need not ve a quadratic polynomial.

(iv) If two of the zeroes of a cubic polynomial are zero, then it does not have linear and constant terms.

(v) If all the zeroes of a cubic polynomial are negative, then all the coefficients and the constant term of the polynomial have the

same sign.

(vi) If all three zeroes of a cubic polynomial $x^3 + ax^2 - bx + c$ are positive, then atleast one of a,b and c is non-negative.

(vii) The only value of k for which the quadratic polynomial $kx^2 + x + k$ has equal zeroes is $\frac{1}{2}$.

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14. Find the zeroes of the following polynomials by factorisation method and

verify the relations between the zeroes and the coefficients of the polynomials

(i) $4x^2 - 3x - 1$

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15. Find the zeroes of the following polynomials by factorisation method and verify the relations between the zeroes and the coefficients of the polynomials

(ii) $3x^2 + 4x - 4$

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16. Find the zeroes of the following polynomials by factorisation method and verify the relations between the zeroes and the coefficients of the polynomials

(iii) $5t^2 + 12t + 7$.

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17. Find the zeroes of the following polynomials by factorisation method and verify the relations between the zeroes and

the coefficients of the polynomials (iv) $t^3 - 2t^2 - 15t.$

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18. Find the zeroes of the following polynomials by factorisation method and verify the relations between the zeroes and the coefficients of the polynomials

(v) $2x^2 + \frac{7}{2}x + \frac{3}{4}$

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19. Find the zeroes of the following polynomials by factorisation method and verify the relations between the zeroes and the coefficients of the polynomials (vi) $4x^2 + 5\sqrt{2}x - 3.$

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20. Find the zeroes of the following polynomials by factorisation method and verify the relations between the zeroes and

the coefficients of the polynomials

(vii) $2s^2 - \left(1 + 2\sqrt{2}\right)s + \sqrt{2}$

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21. Find the zeroes of the following polynomials by factorisation method and verify the relations between the zeroes and the coefficients of the polynomials

(viii) $v^2 + 4\sqrt{3}v - 15$

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22. Find the zeroes of the following polynomials by factorisation method and verify the relations between the zeroes and the coefficients of the polynomials

(ix) $y^2 + \frac{3}{2}\sqrt{5}y - 5$

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23. Find the zeroes of the following polynomials by factorisation method and verify the relations between the zeroes and

the coefficients of the polynomials

(x) $7y^2 - \frac{11}{3}y - \frac{2}{3}$

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24. For each of the following find a quadratic polynomial whose sum and product respectively of the zeroes are as given. Also, find the zeroes of these polynomials by factorisation. (i) $\frac{-8}{3}, \frac{4}{3}$ (ii) $\frac{-3}{2\sqrt{5}}, -\frac{1}{2}$

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25. Given that zeroes of cubic polynomial $x^3 - 6x^2 + 3x + 10$ are of the form a,a+b,a+2b for some real numbers a and b, find the values of a and b as well as zeroes of the given polynomial.

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26. If $\sqrt{2}$ is a zero of $p(x) = 6x^3 + \sqrt{2}x^2 - 10x - 4\sqrt{2}$, find the remaining zeros

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27. The value of k, if $x^2 + 2x + k$ is a factor of $2x^4 + x^3 - 14x^2 + 5x + 6$ is

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28. Given that $x - \sqrt{5}$ is a factor of the cubic polynomial $x^3 - 3\sqrt{5}x^2 + 13x - 3\sqrt{5}$, find the other zeroes of the polynomial.

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29. For which values of a and b, the zeroes of $q(x) = x^3 + 2x^2 + a$ are also the zeroes of the polynomial $p(x) = x^5 - x^4 - 4x^3 + 3x^2 + 3x + b$?

Which zeores of $p(x)$ are not the zeroes of $p(x)$?

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