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MATHS

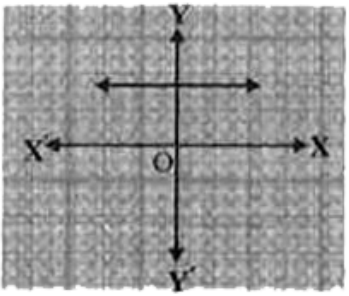
BOOKS - CAMBRIDGE MATHS (KANNADA ENGLISH)

POLYNOMIALS

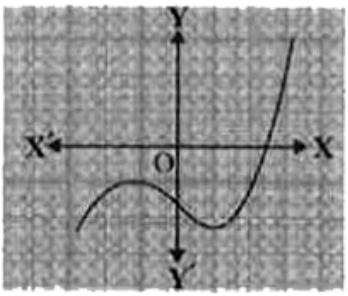
Exercise 9 1

1. (i) The graphs of y p(x) are given in Fig. below, for some polynomials p(x). Find the

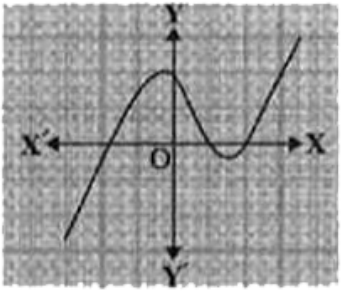
number of zeroes of p(x), in each case.



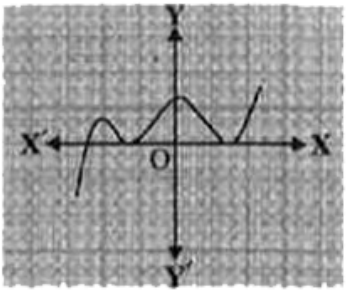
(i)



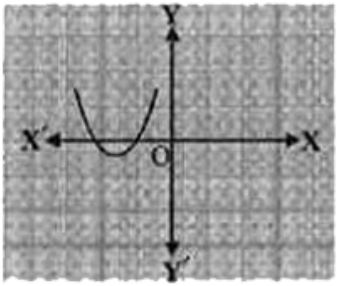
(ii)



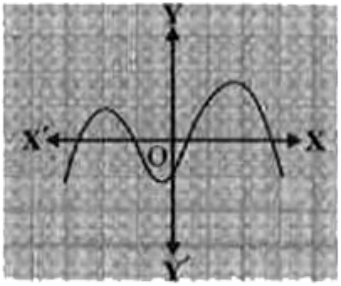
(iii)



(vi)



(iv)



(v)

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Exercise 9 2

1. (i)Find the zeroes of the following quadratic polynomials and verify the relationship between the zeroes and the coefficients.

$x^2 - 2x - 8$

(ii)Find the zeroes of the following quadratic polynomials and verify the relationship between the zeroes and the coefficients.

$4s^2 - 4s + 1$

(iii)(Find the zeroes of the following quadratic polynomials and verify the relationship

between the zeroes and the coefficients.

$6x^2 - 3 - 7x)$

(iv)Find the zeroes of the following quadratic polynomials and verify the relationship between the zeroes and the coefficients.

$4u^2 + 8u$

(v)Find the zeroes of the following quadratic polynomials and verify the relationship between the zeroes and the coefficients.

$t^2 - 15$

(vi)Find the zeroes of the following quadratic polynomials and verify the relationship

between the zeroes and the coefficients.

$3x^2 - x - 4$

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2. (i) Find a quadratic polynomial each with the given numbers as the sum and product of its zeroes respectively.

$\frac{1}{4}, -1$

(ii) Find a quadratic polynomial each with the given numbers as the sum and product of its zeroes respectively.

$\sqrt{2}, \frac{1}{3}$

(iii) Find a quadratic polynomial each with the given numbers as the sum and product of its zeroes respectively.

$0, \sqrt{5}$

(iv) Find a quadratic polynomial each with the given numbers as the sum and product of its zeroes respectively.

$1, 1$

(v) Find a quadratic polynomial each with the given numbers as the sum and product of its zeroes respectively.

$-\frac{1}{4}, \frac{1}{4}$

(vi) Find a quadratic polynomial each with the given numbers as the sum and product of its zeroes respectively.

$4, 1$

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Exercise 9 3

1. (i) Divide the polynomial p(x) by the polynomial g(x) and find the quotient and remainder in each of the following:

$p(x) = x^3 - 3x^2 + 5x - 3, g(x) = x^2 - 2$

(ii) Divide the polynomial p(x) by the polynomial g(x) and find the quotient and remainder in each of the following:

$p(x) = x^4 - 3x^2 + 4x + 5, g(x) = x^2 + 1 - x$

(iii) Divide the polynomial p(x) by the polynomial g(x) and find the quotient and remainder in each of the following:

$p(x) = x^4 - 5x + 6, g(x) = 2 - x^2$

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2. (i) Check whether the first polynomial is a factor of the second polynomial by dividing the second polynomial by the first polynomial:

$t^2 - 3, 2t^4 + 3t^3 - 2t^2 - 9t - 12$

(ii) Check whether the first polynomial is a factor of the second polynomial by dividing the second polynomial by the first polynomial

$x^2 + 3x + 1, 3x^4 + 5x^3 - 7x^2 + 2x + 2$

(iii) Check whether the first polynomial is a factor of the second polynomial by dividing the second polynomial by the first polynomial:

$x^3 - 3x + 1, x^5 - 4x^3 + x^2 + 3x + 1$

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3. Obtain all other zeroes of $3x^4 + 6x^3 - 2x^2 - 10x - 5$, if two of its zeroes are $\sqrt{\frac{5}{3}}$ and $-\sqrt{\frac{5}{3}}$

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4. On dividing $x^3 - 3x^2 + x + 2$ by a polynomial g(x), the quotient and remainder

were x-2 and -2x+4, respectively. Find g(x).

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5. (i) Give examples of polynomials $p(x), g(x), q(x)$ and $r(x)$, which satisfy the division algorithm and

deg p(x)=deg q(x)

(ii) Give examples of polynomials $p(x), g(x), q(x)$ and $r(x)$, which satisfy the division algorithm and

deg q(x)=deg r(x)

(iii) Give examples of polynomials $p(x), g(x), q(x)$ and $r(x)$, which satisfy the division algorithm and

deg r(x)=0

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Exercise 9 4

1. (i) Verify that the numbers given alongside of the cubic polynomials below are their zeroes. Also verify the relationship between

the zeroes and the coefficients in this case:

$2x^2 + x^2 - 5x + 2, \frac{1}{2}, 1, -2$

(ii) Verify that the numbers given alongside of the cubic polynomials below are their zeroes. Also verify the relationship between the zeroes and the coefficients in this case:

$x^3 - 4x^2 + 5x - 2, 2, 1, 1$

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2. Find a cubic polynomial with the sum, sum of the product of its zeroes taken two at a

time, and the product of its zeroes as 2, -7, -14 respectively.

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3. If the zeroes of the polynomial $x^3 - 3x^2 + x + 1$ are $a - b, a, a + b$, find a and b.

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4. If the zeroes of the polynomial $x^4 - 6x^3 - 26x^2 + 138x - 35$ are $2 \pm \sqrt{3}$ Find other zeroes.

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5. If the polynomial $x^4 - 6x^3 + 16x^2 - 25x + 10,$ is divided by another polynomial $x^2 - 2x + k,$ the reminder comes out to be $x + a,$ find k and $a.$

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