Previous Year Boards Questions
Chapter 2 – Polynomials

1 Mark:

1. The roots of the equation $x^2 + x - p(p + 1) = 0$, where $p$ is a constant, are
   A) $p, p + 1$      B) $-p, p + 1$
   C) $p, -(p + 1)$   D) $-p, -(p + 1)$

   CBSE 2011, Delhi (30/1/1)

2. If $\alpha, \beta$ are the zeroes of a polynomial, such that $\alpha + \beta = 6$ and $\alpha\beta = 4$, then write the polynomial.

   CBSE 2010, Delhi (30/1/1)

3. If one zero of the polynomial $x^2 - 4x + 1$ is $2 + \sqrt{3}$, write the other zero.

   CBSE 2010, Foreign (30/2/1)

4. For what value of $k$, $-4$ is a zero of the polynomial $x^2 - x - (2k + 2)$?

   CBSE 2009, Delhi (30/1/1)

5. Write the polynomial, the product and sum of whose zeroes are $-\frac{9}{2}$ and $-\frac{3}{2}$ respectively.

   CBSE 2009, Foreign (30/2/1)

6. If 1 is a zero of the polynomial $p(x) = ax^2 - 3(a - 1)x - 1$, then find the value of $a$.

   CBSE 2009, Outside Delhi (30/1)

7. Show that $x = -3$ is a solution of $x^2 + 6x + 9 = 0$.

   CBSE 2008, Foreign (30/2/1)

8. Show that $x = -3$ is a solution of $2x^2 + 5x - 3 = 0$.

   CBSE 2008, Foreign (30/2/2)

9. If $(x + a)$ is a factor of $2x^2 + 2ax + 5x + 10$, find $a$.

   CBSE 2008, Foreign (30/2/2)

10. The sum and product of the zeroes of a quadratic polynomial are $-1/2$ and $-3$ respectively. What is the quadratic polynomial?

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11. The graph of $y = f(x)$ is given below. Find the number of zeroes of $f(x)$.

    CBSE Sample Paper II 2008

12. Give an example of polynomials $f(x), g(x), q(x)$ and $r(x)$ satisfying $f(x) = g(x) \cdot q(x) + r(x)$ where $\deg r(x) = 0$.

    CBSE Sample Paper II 2008
13. In Fig. the graph of polynomial \( p(x) \) is given. Find the zeroes of the polynomial.

2 Marks:
1. If two zeroes of the polynomial \( x^3 - 4x^2 - 3x + 12 \) are \( \sqrt{3} \) and \( -\sqrt{3} \), then find its third zero.  
   CBSE 2010, Delhi (30/1/1)
2. If \( -1 \) and \( 2 \) are two zeroes of the polynomial \( 2x^3 - x^2 - 5x - 2 \), find its third zero.  
   CBSE 2010, Foreign (30/2/1)
3. If the polynomial \( 6x^4 + 8x^3 + 17x^2 + 21x + 7 \) is divided by another polynomial \( 3x^2 + 4x + 1 \), the remainder comes out to be \( (ax + b) \), find \( a \) and \( b \).  
   CBSE 2009, Delhi (30/1/1)
4. Find all the zeroes of the polynomial \( x^3 + 3x^2 - 2x - 6 \), if two of its zeroes are \( -\sqrt{2} \) and \( \sqrt{2} \).  
   CBSE 2009, Outside Delhi (30/1)
5. Find all the zeroes of the polynomial \( x^4 + x^3 - 34x^2 - 4x + 120 \), if two of its zeroes are \( 2 \) and \( -2 \).  
   CBSE 2008, Foreign (30/2/2)
6. Write a quadratic polynomial, sum of whose zeroes is \( 2\sqrt{3} \) and their product is \( 2 \).  
   CBSE Sample Paper III 2008
7. What are the quotient and the remainder, when \( 3x^4 + 5x^3 - 7x^2 + 2x + 2 \) is divided by \( x^2 + 3x + 1? \)  
   CBSE Sample Paper III 2008

3 Marks:
1. If the polynomial \( 6x^4 + 8x^3 - 5x^2 + ax + b \) is exactly divisible by the polynomial \( 2x^2 - 5 \), then find the value of \( a \) and \( b \).  
   CBSE 2009, Foreign (30/2/1)
2. If two zeroes of polynomial \( x^4 + 3x^3 - 20x^2 - 6x + 36 \) are \( \sqrt{2} \) and \( -\sqrt{2} \), find the other zeroes of the polynomial.  
   CBSE 2007, Outside Delhi (30/1)
3. Find the zeroes of the quadratic polynomial \( x^2 + 5x + 6 \) and verify the relationship between the zeroes and the coefficients.  
   CBSE Sample Paper II 2008
4. Find all the zeroes of the polynomial \( 3x^4 + 6x^3 - 2x^2 - 10x - 5 \) if two of its zeroes are \( \frac{5}{\sqrt{3}} \) and \( -\frac{5}{\sqrt{3}} \).  
   CBSE Sample paper I 2017-2018