RS Aggarwal Solutions for Class 10 Maths Chapter 2 Exercise 2.3: Our subject matter specialists have created the RS Aggarwal Solutions for Class 10 Maths Chapter 2 Exercise 2.3 Polynomials that are available here. To help students understand the material more easily, subject matter experts create and then review these solutions. This guarantees that the students of Class 10 Maths may quickly comprehend these RS Aggarwal Solutions.

The RS Aggarwal Solutions for Class 10 Maths Chapter 2 Exercise 2.3 provides an explanation of the Division Algorithm for polynomials. Based on the guidelines, these RS Aggarwal Solutions for Class 10 Maths Chapter 2 Exercise 2.3 have been generated. It makes sure that every topic in the syllabus is addressed while offering the answers, preventing the student from missing any.

RS Aggarwal Solutions for Class 10 Maths Chapter 2 Exercise 2.3 Overview

Here, students can get the Class 10 Rs Aggarwal Chapter 2 Solution for free, which will aid them in getting ready for their board exams. With years of teaching expertise, our subject matter specialists here have developed these RS Aggarwal Class 10 Ch 2 solutions exercise 2.3, making them precise and dependable.

RS Aggarwal Solutions Class 10 Polynomials teaches you how to properly format your exam answers and gives you a thorough grasp of the chapter's ideas.

RS Aggarwal Solutions for Class 10 Maths Chapter 2 Exercise 2.3

Below we have provided RS Aggarwal Solutions for Class 10 Maths Chapter 2 Exercise 2.3 for the ease of the students –

Question 1 :

Solution : This data is mentioned in questions that, zero of the polynomial $x^2 - 4x + 1$ is $(2 + \sqrt{3})$

Let the other zero of the polynomial be a

As we have read that,

Sum of zeros = $\frac{-\text{(Coeficient of x)}}{\text{Coeficient of } x^2}$

$\therefore 2 + \sqrt{3} + a = \frac{-(-4)}{1}$

$a = 2 - \sqrt{3}$

Thereforee, the other zero of the given polynomial is $(2 - \sqrt{3})$

Question 2 :

Solution : We have,

$f(x) = x^2 + x - p(p + 1)$

Now, by adding and subtracting px, we get

$f(x) = x^2 + px + x - px - p(p + 1)$

$= x^2 + (p + 1)x - px - p(p + 1)$

$= x[x + (p + 1)] - p[x + (p + 1)]$

$= [x + (p + 1)](x - p)$

∴ f (x) = 0

[x + (p + 1)] (x – p) = 0

[x + (p + 1)] = 0 or (x – p) = 0

x = p or x = - (p + 1)

Thereforee, the zeros of the given polynomial are p and – (p + 1)

Tagging : Maths||Polynomials||Relation Between Zeros and Coefficient of a Polynomial

Difficulty : Easy

Question Type : Short Answer Type

Book Tags : First Term || 2. Polynomials|| Exercise 2C

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Question 3 :

Solution : We have,

f (x) = x^2 – 3x – m (m + 3)

Now, by adding and subtracting px, we get

$f(x) = x^2 - mx - 3x + mx - m(m + 3)$

$= x[x - (m + 3)] + m[x - (m + 3)]$

$= [x - (m + 3)](x + m)$

$\therefore f(x) = 0$

$[x - (m + 3)](x + m) = 0$

$[x - (m + 3)] = 0$ or $(x + m) = 0$

$x = m + 3$ or $x = -m$

Therefore, the zeros of the given polynomial are $-m$ and $m + 3$

Question 4 :

Solution : This data is mentioned in questions that,

$\alpha + \beta = 6$

And, $\alpha\beta = 4$

As we have read that,

If the zeros of the polynomial are α and β then the quadratic polynomial can be found as $x^2 - (\alpha + \beta)x + \alpha\beta$ (i)

Now substituting the values in (i), we get

$x^2 - 6x + 4$

Question 5 :

Solution : This data is mentioned in questions that,

One of the zero of the polynomial $kx^2 + 3x + k$ is 2

∴ It will satisfy the above polynomial

Now, we have

$k (2)^2 + 3 (2) + k = 0$

$4k + 6 + k = 0$

$5k + 6 = 0$

$5k = - 6$

∴ $k = -6/5$

Question 6 :

Solution : This data is mentioned in questions that,

One of the zero of the polynomial $2x^2 + x + k$ is 3

∴ It will satisfy the above polynomial

Now, we have

$2 (3)^2 + 3 + k = 0$

$21 + k = 0$

$k = - 21$

Question 7 :

Solution : This data is mentioned in questions that,

One of the zero of the polynomial $x^2 - x(2k + 2)$ is - 4

∴ It will satisfy the above polynomial

Now, we have

$(-4)^2 - (-4) - (2k + 2) = 0$

$16 + 4 - 2k - 2 = 0$

$-2k = -18$

$k = 18/2$

∴ $k = 9$

Question 8 :

Solution : This data is mentioned in questions that,

One of the zero of the polynomial $ax^2 - 3(a - 1)x - 1$ is 1

∴ It will satisfy the above polynomial

Now, we have

$a(1)^2 - (a - 1)1 - 1 = 0$

Question 9 :

Solution : This data is mentioned in questions that,

One of the zero of the polynomial $3x^2 + 4x + 2k$ is - 2

∴ It will satisfy the above polynomial

Now, we have

$3(-2)^2 + 4(-2) + 2k = 0$

$12 - 8 + 2k = 0$

$4 + 2k = 0$

$2k = -4$

∴ $k = -2$

Question 10 :

Solution : We have,

$f(x) = x^2 - x - 6$

$= x^2 - 3x + 2x - 6$

$= x (x - 3) + 2 (x - 3)$

$= (x - 3) (x + 2)$

$f (x) = 0$

$(x - 3) (x - 2) = 0$

$(x - 3) = 0$ or $(x - 2) = 0$

$x = 3$ or $x = 2$

∴ The zeros of the given polynomial are 3 and – 2

Question 11 :

Solution : This data is mentioned in questions that, zero of the polynomial $kx^2 - 3x + 5$ is 1

Sum of zeros = $\frac{-\text{(Coeficient of x)}}{\text{Coeficient of } x^2}$

$\Rightarrow 1 = \frac{-(-3)}{k}$

$\Rightarrow k = 3$

Question 12 :

Solution : This data is mentioned in questions that, zero of the polynomial $x^2 - 4x + k$ is 3

Now by using the relationship between the zeros of the quadratic polynomial we have:

Sum of zeros = $\frac{-\text{(Coeficient of x)}}{\text{Coeficient of } x^2}$

$3 = k/1$

$k = 3$

Question 13 :

Solution : This data is mentioned in questions that,

$(x + 4)$ is a factor of $2x^2 + 2ax + 5x + 10$

Now, we have

$x + a = 0$

$x = - a$

As $(x + a)$ is a factor of $2x^2 + 2ax + 5x + 10$

Thus, it will satisfy the given polynomial

$\therefore 2(-a)^2 + 2a(-a) + 5(-a) + 10 = 0$

$-5a + 10 = 0$

$a = 2$

Question 14 :

Solution : This data is mentioned in questions that, zero of the polynomial $2x^3 - 6x^2 + 5x - 7$ is $(a - b)$, a and $(a + b)$

Now by using the relationship between the zeros of the quadratic polynomial we have:

Sum of zeros = $\frac{-(\text{Coeficient of x})}{\text{Coeficient of } x^2}$

$a - b + a + a + b = (-(-6))/2$

$3a = 3$

$a = 1$

Question 15 :

Solution : Firstly, equating $x^2 - x$ to 0 to find the zeros we get:

$x(x - 1) = 0$

$x = 0$ or $x - 1 = 0$

$x = 0$ or $x = 1$

As $x^3 + x^2 - ax + b$ is divisible by $x^2 - x$

$\therefore$ The zeros o $x^2 - x$ will satisfy $x^3 + x^2 - ax + b$

Therefore, $(0)^3 + 0^2 - a(0) + b = 0$

Question 16 :

Solution : This data is mentioned in questions that, zeros of the polynomial $2x^2 + 7x + 5$ are α and β

Now by using the relationship between the zeros of the quadratic polynomial we have:

Sum of zeros = $\frac{-(\text{Coeficient of x})}{\text{Coeficient of } x^2}$ and product of zeros = $\frac{\text{Constant term}}{\text{Coeficient of } x^2}$

$\alpha + \beta = \frac{-7}{2}$ and $\alpha\beta = \frac{5}{2}$

$\therefore \alpha + \beta + \alpha\beta = -\frac{7}{2} + \frac{5}{2} = -1$

Question 17 :

Solution : The Division algorithm for polynomials is as follows:

If we have two polynomials f (x) and g (x) and the degree of f (x) is greater than the degree of g (x), where g (x) $\neq$ 0 than there exist two unique polynomials q (x) and r (x) such that:

f (x) = g (x)× q(x) + r(x)

Question 18 :

Solution : As we have read that,

We can find the quadratic polynomial if we know the sum of the roots and product of the roots by using the formula:

x^2 – (Sum of the zeroes)x + Product of zeros

$\therefore x^2 - (-1/2)\,x + (-3)$

$$x^2 + \frac{1}{2}x - 3$$

$\therefore$ The required polynomial is $x^2 + \frac{1}{2}x - 3$

Question 19 :

Solution : As we have read that,

To find the zeros of the quadratic polynomial we have to equate the f (x) to 0

$\therefore f(x) = 0$

$6x^2 - 3 = 0$

Question 20 :

Solution : As we have read that,

To find the zeros of the quadratic polynomial we have to equate the f (x) to 0

$\therefore$ f (x) = 0

$4\sqrt{3}\,x^2 + 5x - 2\sqrt{3} = 0$

$4\sqrt{3}\,x^2 + 8x - 3x - 2\sqrt{3} = 0$

$4x(\sqrt{3}\,x + 2) - \sqrt{3}(\sqrt{3}\,x + 2) = 0$

$(\sqrt{3}\,x + 2) = 0$ or $(4x - \sqrt{3}) = 0$

$x = -\frac{2}{\sqrt{3}}$ or $x = \frac{\sqrt{3}}{4}$

Question 21 :

Solution : This data is mentioned in questions that,

Zeros of the polynomial $x^2 - 5x + k$ are α and β

Also,

$\alpha - \beta = 1$

Now by using the relationship between the zeros of the quadratic polynomial we have:

Sum of zeros = $\frac{-(\text{Coeficient of x})}{\text{Coeficient of } x^2}$ and product of zeros = $\frac{\text{Constant term}}{\text{Coeficient of } x^2}$

$\alpha + \beta = \frac{-(-5)}{1}$ and $\alpha\beta = \frac{k}{1}$

$\alpha + \beta = 5$ and $\alpha \beta = k/1$

Now solving $\alpha - \beta = 1$ and $\alpha + \beta = 5$, we get:

$\alpha = 3$ and $\beta = 2$

Now, substituting these values in $\alpha\beta$ we get:

$k = 6$

Question 22 :

Solution : This data is mentioned in questions that,

Zeros of the polynomial $6x^2 + x - 2$ are α and β

Now by using the relationship between the zeros of the quadratic polynomial we have:

Sum of zeros = $\frac{-(\text{Coeficient of x})}{\text{Coeficient of } x^2}$ and product of zeros = $\frac{\text{Constant term}}{\text{Coeficient of } x^2}$

Question 23 :

Solution : This data is mentioned in questions that,

Zeros of the polynomial $5x^2 - 7x + 1$ are α and β

Now by using the relationship between the zeros of the quadratic polynomial we have:

Sum of zeros = $\frac{-(\text{Coeficient of x})}{\text{Coeficient of x}^2}$ and product of zeros = $\frac{\text{Constant term}}{\text{Coeficient of x}^2}$

$\alpha + \beta = \frac{-(-7)}{5}$ and $\alpha\beta = \frac{1}{5}$

$\alpha + \beta = \frac{7}{5}$ and $\alpha\beta = \frac{1}{5}$

Now, we have:

$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\alpha + \beta}{\alpha\beta}$

$= \frac{\frac{7}{5}}{\frac{1}{5}}$

$= 7$

Question 24 :

Solution : This data is mentioned in questions that,

Zeros of the polynomial $x^2 + x - 2$ are α and β

Now by using the relationship between the zeros of the quadratic polynomial we have:

Sum of zeros = $\frac{-(\text{Coeficient of x})}{\text{Coeficient of } x^2}$ and product of zeros = $\frac{\text{Constant term}}{\text{Coeficient of } x^2}$

$\alpha + \beta = \frac{-1}{1}$ and $\alpha\beta = \frac{-2}{1}$

$\alpha + \beta = -1$ and $\alpha\beta = -2$

Now, we have:

$\frac{1}{\alpha} - \frac{1}{\beta} = (\frac{\beta - \alpha}{\alpha\beta})^2$

$= \frac{(\alpha + \beta)^2 - 4\alpha\beta}{(\alpha\beta)^2}$

$= \frac{(-1)^2 - 4(-2)}{(-2)^2}$

$= \frac{1 + 8}{4}$

$= \frac{9}{4}$

$\therefore \left(\frac{1}{\alpha} - \frac{1}{\beta}\right)^2 = \frac{9}{4}$

$(\frac{1}{\alpha} - \frac{1}{\beta}) = \pm \frac{3}{2}$

Question 25 :

Solution : This data is mentioned in questions that,

Zeros of the polynomial $x^3 - 3x^2 + x + 1$ are $(a - b)$, a and $(a + b)$

Now by using the relationship between the zeros of the quadratic polynomial we have:

Sum of zeros = $\frac{-(\text{Coeficient of x})}{\text{Coeficient of } x^2}$

a – b + a + a + b = $-\frac{-3}{1}$

3a = 3

a = $\frac{3}{3} = 1$

Now, we have product of zeros = $\frac{\text{Constant term}}{\text{Coeficient of } x^2}$

(a – b) (a) (a + b) = $-\frac{1}{1}$

(1 – b) (1) (1 + b) = - 1

1 – b^2 = - 1

b^2 = 2

∴ b = $\pm\sqrt{2}$

Benefits of RS Aggarwal Solutions for Class 10 Maths Chapter 2 Exercise 2.3

RS Aggarwal Solutions for Class 10 Maths, particularly for Chapter 2 Exercise 2.3, offer several benefits to students:

Structured Approach: The solutions are presented in a structured manner, following the sequence of the textbook. This helps students understand the logical flow of concepts and problem-solving methods.

Step-by-Step Solutions: Each problem is solved step-by-step, making it easier for students to grasp the solution process. This clarity helps in understanding the application of mathematical principles and formulas.

Concept Clarity: RS Aggarwal Solutions is known for its focus on the clarity of concepts. By providing detailed explanations, these solutions ensure that students not only solve problems but also understand the underlying concepts thoroughly.

Practice: The exercise problems in Chapter 2 Exercise 2.3 are designed to provide ample practice. The solutions help students verify their answers and learn from mistakes, thereby improving their problem-solving skills.

Exam Preparation: Since RS Aggarwal's books are aligned with various educational boards' syllabi, using these solutions ensures that students are well-prepared for their exams. The problems are typical of varying difficulty levels, which prepares students for different types of exam questions.

Supplementary Material: Apart from the textbook exercises, RS Aggarwal Solutions often provides additional practice problems or alternative methods of solving problems. This supplementary material can deepen students' understanding and broaden their problem-solving strategies.

Self-Study Aid: These solutions serve as a valuable resource for students studying independently. They can refer to the solutions to clarify doubts and reinforce their understanding of concepts without relying solely on classroom instruction.

Consistency: RS Aggarwal Solutions maintains consistency in its approach across different chapters and exercises. This uniformity helps students develop a familiarity with the solving techniques and enhances their overall learning experience.