RS Aggarwal Solutions for Class 10 Maths Chapter 2 Exercise 2.1: Class 10 students who are getting ready for their board exams can download the RS Aggarwal Class 10 Maths Chapter 2 Ex 2.1 solutions to use as a guide while they answer the questions.

These solutions are created by our subject matter specialists. If you have any questions, the logical and understandable answers provided for each question in the RS Aggarwal Solutions Class 10 Maths Ex 2.1 PDF will be helpful. To help you do well on your exams, the Polynomials Class 10 Rs Aggarwal Maths solutions are prepared by CBSE requirements. Students can edit the chapter using this PDF as a revision tool. Algebraic expressions with several variables and coefficients are called polynomials.

RS Aggarwal Solutions for Class 10 Maths Chapter 2 Exercise 2.1 Overview

The goal of the solutions for RS Aggarwal Maths Class 10 Chapter 10 Exercise 2.1 is to provide readers with a thorough grasp of the chapter.

Download the free PDF version of RS Aggarwal Class 10 Maths Chapter 10 Exercise 2.1 Solution here to gain a thorough understanding of the chapter. Students who grasp the material thoroughly will find it easier to respond to test questions. You can get this insight by practicing various kinds of puzzles.

RS Aggarwal Solutions for Class 10 Maths Chapter 2 Exercise 2.1

Question 1 :

Solution : Let $f(x) = x^2 + 7x + 12$

Put $f(x) = 0$

$x^2 + 7x + 12 = 0$

$x^2 + 4x + 3x + 12 = 0$

$3(x + 4) + x(x + 4) = 0$

$(3 + x)(x + 4) = 0$

$\therefore x = -4$ or $x = -3$

Now,

sum of zeroes = $-3 + (-4) = -7 = \frac{-\text{coefficient of x}}{\text{coefficient of } x^2}$

Product of zeroes = $(-3) \times (-4) = \frac{12}{1} = \frac{\text{constant term}}{\text{coefficient of } x^2}$

Hence, relationship verified.

Question 2 :

Solution : Let $f(x) = x^2 + 2x - 8$

Put $f(x) = 0$

$x^2 + 2x - 8 = 0$

$x^2 + 2x - 4x - 12 = 0$

$x(x + 2) - 4 (x + 2) = 0$

$(2 + x) (x - 4) = 0$

$\therefore$ x = 4 or x = -2

Now, sum of zeroes = -2 + 4 = 2 = $\frac{-\text{coefficient of x}}{\text{coefficient of } x^2}$

Product of zeroes = (4) × (-2) $= \frac{8}{1} = \frac{\text{constant term}}{\text{coefficient of } x^2}$

Hence, relationship verified.

Question 3 :

Solution : Let $f(x) = x^2 + 3x - 10$

Put $f(x) = 0$

$x^2 + 3x - 10 = 0$

$x^2 + 5x - 2x - 10 = 0$

$x(x + 5) - 2(x + 5) = 0$

$(5 + x)(x - 2) = 0$

$\therefore x = -5$ or $x = 2$

Now, sum of zeroes = $-5 + (2) = -3 = \frac{-\text{coefficient of x}}{\text{coefficient of } x^2}$

Product of zeroes = $(-5) \times (2) = \frac{10}{1} = \frac{\text{constant term}}{\text{coefficient of } x^2}$

Hence, relationship verified.

Question 4 :

Solution : Let $f(x) = 4x^2 - 4x - 3$

Put $f(x) = 0$

$4x^2 - 4x - 3 = 0$

$4x^2 - 6x + 2x - 3 = 0$

$2x(2x - 3) + 1(2x - 3) = 0$

$(2x + 1)(2x - 3) = 0$

$\therefore x = -\frac{1}{2}$ or $x = \frac{3}{2}$

Now, sum of zeroes = $\left(-\frac{1}{2}\right) + \left(\frac{3}{2}\right) = -1 = \frac{-\text{coefficient of x}}{\text{coefficient of } x^2}$

Product of zeroes = $\left(-\frac{1}{2}\right) \times \left(\frac{3}{2}\right) = \frac{-3}{4} = \frac{\text{constant term}}{\text{coefficient of } x^2}$

Hence, relationship verified.

Question 5 :

Solution : Let $f(x) = 5x^2 - 4 - 8x$

Put $f(x) = 0$

$5x^2 - 8x - 4 = 0$

$5x^2 - 10x + 2x - 4 = 0$

$5x(x - 2) + 2(x - 2) = 0$

$(5x + 2)(x - 2) = 0$

$\therefore\ x = 2 \text{ or } x = -\frac{2}{5}$

Now, sum of zeroes = $2 + \left(-\frac{2}{5}\right) = \frac{8}{5} = \frac{-\text{coefficient of x}}{\text{coefficient of } x^2}$

Question 6 :

$2\sqrt{3}x^2 - 5x + \sqrt{3}$

Solution : Let f(x)= $2\sqrt{3}\,x^2 - 5x + \sqrt{3}$

Put f(x) = 0

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

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

$2x(\sqrt{3}x - 1) - \sqrt{3}(\sqrt{3}x - 1) = 0$

$(\sqrt{3}x - 1)(2x - \sqrt{3}) = 0$

$\therefore\ x = \frac{\sqrt{3}}{3}$ or $x = \frac{\sqrt{3}}{2}$

Now,

sum of zeroes $= \frac{\sqrt{3}}{3} + \frac{\sqrt{3}}{2} = \frac{5\sqrt{3}}{6} = \frac{-\text{coefficient of } x}{\text{coefficient of } x^2}$

Product of zeroes $= \left(\frac{\sqrt{3}}{3}\right) \times \left(\frac{\sqrt{3}}{2}\right) = \frac{1}{2} = \frac{\text{constant term}}{\text{coefficient of } x^2}$

Hence, relationship verified.

Question 7 :

Solution : Let f(x) = $2x^2 - 11x + 15$

Put f(x) = 0

$2x^2 - 11x + 15 = 0$

$2x^2 - 6x - 5x + 15 = 0$

$2x(x - 3) - 5(x - 3) = 0$

$(2x - 5)(x - 3) = 0$

$\therefore\ x = 3 \text{ or } x = \frac{5}{2}$

Now, sum of zeroes $= 3 + \left(\frac{5}{2}\right) = \frac{11}{2} = \frac{-\text{coefficient of x}}{\text{coefficient of } x^2}$

Product of zeroes $= (3) \times \left(\frac{5}{2}\right) = \frac{-15}{2} = \frac{\text{constant term}}{\text{coefficient of } x^2}$

Hence, relationship verified.

Question 8 :

Solution : Let f(x) $=4x^2 - 4x + 1$ 8x

Put f(x) = 0

$4x^2 - 4x + 1 = 0$

$(2x)^2 - 2(2x)(1) + (1)^2 = 0$

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

$\therefore\ x = \frac{1}{2} \text{ or } x = \frac{1}{2}$

Now,

sum of zeroes $= \frac{1}{2} + \left(\frac{1}{2}\right) = 1 = \frac{-\text{coefficient of x}}{\text{coefficient of } x^2}$

Product of zeroes $= \left(\frac{1}{2}\right) \times \left(\frac{1}{2}\right) = \frac{1}{4} = \frac{\text{constant term}}{\text{coefficient of } x^2}$

Hence, relationship verified.

Question 9 :

Solution : Let $f(x) = x^2 - 5$

Put $f(x) = 0$

$x^2 - 5 = 0$

$(x - \sqrt{5})(x + \sqrt{5}) = 0$

$\therefore x = \sqrt{5}$ or $x = -\sqrt{5}$

Now, sum of zeroes $= \sqrt{5} + (-\sqrt{5}) = 0 = \frac{-\text{coefficient of x}}{\text{coefficient of } x^2}$

Product of zeroes $= (\sqrt{5}) \times (-\sqrt{5}) = \frac{5}{1} = \frac{\text{constant term}}{\text{coefficient of } x^2}$

Hence, relationship verified.

Question 10 :

Solution : Let f(x) = $8x^2 - 4$

Put f(x) = 0

$8x^2 - 4 = 0$

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

$\therefore\ x = \frac{1}{\sqrt{2}}$ or $x = -\frac{1}{\sqrt{2}}$

Now, sum of zeroes $= \frac{1}{\sqrt{2}} + \left(-\frac{1}{\sqrt{2}}\right) = 0 = \frac{-\text{coefficient of x}}{\text{coefficient of } x^2}$

Product of zeroes $= \left(\frac{1}{\sqrt{2}}\right) \times \left(-\frac{1}{\sqrt{2}}\right) = \frac{-1}{2} = \frac{\text{constant term}}{\text{coefficient of } x^2}$

Hence, relationship verified.

Question 11 :

Solution : Let f(x) = $5y^2 + 10y$

Put f(x) = 0

$5y^2 + 10y = 0$

(5y) (y + 2) = 0

∴ x =0 or x = -2

Now, sum of zeroes $= 0 + (-2) = -2 = \frac{-\text{coefficient of x}}{\text{coefficient of } x^2}$

Product of zeroes $= (0) \times (-2) = 0 = \frac{\text{constant term}}{\text{coefficient of } x^2}$

Hence, relationship verified.

Question 12 :

Solution : Let f(x) =$3x^2 - x - 4$

Put f(x) = 0

$3x^2 - x - 4 = 0$

$3x^2 - 4x + 3x - 4 = 0$

$x(3x - 4) + 1(3x - 4) = 0$

$(x + 1)(3x - 4) = 0$

$\therefore\ x = -1 \text{ or } x = \frac{4}{3}$

Now, sum of zeroes $= -1 + \left(\frac{4}{3}\right) = \frac{1}{3} = \frac{-\text{coefficient of x}}{\text{coefficient of } x^2}$

Product of zeroes $= (-1) \times \left(\frac{4}{3}\right) = \frac{-4}{3} = \frac{\text{constant term}}{\text{coefficient of } x^2}$

Hence, relationship verified.

Question 13 :

Solution : Let $\alpha = 2$ and $\beta = -6$

Now, Sum of zeros, $\alpha + \beta = 2 - 6 = -4$

And, product of zeroes, $\alpha\beta = 2(-6) = -12$

We know that,

Required polynomial = $x^2 - (\alpha + \beta)x + \alpha\beta$

$= x^2 - (-4)x + (-12)$

$= x^2 + 4x - 12$

Now, sum of zeroes = $2 + (-6) = -4 = \frac{-\text{coefficient of x}}{\text{coefficient of } x^2}$

Question 14 :

Solution : Let $\alpha = \frac{2}{3}$ and $\beta = -\frac{1}{4}$

Now, Sum of zeros, $\alpha + \beta = \frac{2}{3} - \frac{1}{4} = \frac{8-3}{12} = \frac{5}{12}$

And, product of zeroes, $\alpha\beta = \left(\frac{2}{3}\right)\left(-\frac{1}{4}\right) = -\frac{1}{6}$

We know that,

Required polynomial = $x^2 - (\alpha + \beta)x + \alpha\beta$

$= x^2 - \left(\frac{5}{12}\right)x + \left(-\frac{1}{6}\right)$

$= x^2 - \frac{5}{12}x - \frac{1}{6}$

$= 12x^2 - 5x - 2$

Now, sum of zeroes $= \frac{2}{3} + \left(-\frac{1}{4}\right) = 5/12 = \frac{-\text{coefficient of } x}{\text{coefficient of } x^2}$

Product of zeroes $= \left(\frac{2}{3}\right) \times \left(-\frac{1}{4}\right) = -\frac{1}{6} = \frac{\text{constant term}}{\text{coefficient of } x^2}$

Hence, relationship verified.

Question 15 :

Solution : Let the zero of the polynomial be α and β

According to the question,

$\alpha + \beta = 8$

$\alpha\beta = 12$

$\therefore f(x) = x^2 - (\alpha + \beta)x + (\alpha\beta)$

$= x^2 - 8x + 12$

$\therefore$ required polynomial $f(x) = x^2 - 8x + 12$

Put $f(x) = 0$

$x^2 - 8x + 12 = 0$

$x^2 - 6x - 2x + 12 = 0$

$x(x - 6) - 2(x - 6) = 0$

$(x - 6)(x - 2) = 0$

$x = 6$ or $x = 2$

Question 16 :

Solution : Let the zero of the polynomial be α and β

According to the question,

$\alpha + \beta = 0$

$\alpha\beta = -1$

$\therefore f(x) = x^2 - (\alpha + \beta)x + (\alpha\beta)$

$= x^2 - 0x - 1$

$\therefore$ required polynomial $f(x) = x^2 - 1$

Put $f(x) = 0$

$x^2 - 1 = 0$

Question 17

Solution : Let the zero of the polynomial be α and β

According to the question:

$$\alpha + \beta = \frac{5}{2}$$

$\alpha\beta = 1$

$\therefore f(x) = x^2 - (\alpha + \beta)x + (\alpha\beta)$

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

$\therefore$ required polynomial $f(x) = x^2 - \frac{5}{2}x + 1$

Put $f(x) = 0$

$x^2 - (5/2)x + 1 = 0$

$2x^2 - 5x + 2 = 0$

$2x^2 - 4x - x + 2 = 0$

$2x(x - 2) - 1(x - 2) = 0$

$(x - 2)(2x - 1) = 0$

Question 18 :

Solution : Let the zero of the polynomial be α and β

According to the question,

$\alpha + \beta = \sqrt{2}$

$\alpha\beta = \frac{1}{3}$

∴ $f(x) = x^2 - (\alpha + \beta)x + (\alpha\beta)$

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

∴ required polynomial $f(x) = x^2 - \sqrt{2}\,x + 1/3$

Put $f(x) = 0$

$x^2 - \sqrt{2}\,x + 1/3 = 0$

$3x^2 - 3\sqrt{2}x + 1 = 0$

Question 19 :

Solution : We have, $ax^2 + 7x + b = 0$

Now, Sum of zeros $= \frac{2}{3} + (-3) = \frac{2-9}{3} = -\frac{7}{3} = -\frac{-\text{coefficient of x}}{\text{coefficient of } x^2}$

$\Rightarrow -\frac{7}{3} = -\frac{7}{a}$

∴$a = 3$ (i)

Product of zeroes $= \left(\frac{2}{3}\right) \times (-3) = -\frac{2}{1} = \frac{\text{constant term}}{\text{coefficient of } x^2} = -\frac{2}{1} = \frac{b}{3}$ (From i)

∴$b = -6$

Question 20 :

Solution : Since, x + a is a factor of $2x^2 + 2ax + 5x + 10$

$\therefore x + a = 0$

$x = -a$

Put x = -a in $2x^2 + 2ax + 5x + 10 = 0$

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

$2a^2 - 2a^2 - 5a + 10 = 0$

$-5a = -10$

$a = 2$

Question 21 :

Solution : It is given in the question that,

x = 2/3 is one of the zeros of the given polynomial $3x^3 + 16x^2 + 15x - 18$

We have, x = 2/3

$x - 2/3 = 0$

To find the quotient we have to divide the given polynomial by $x - 2/3$

$$
\begin{array}{r|l}
 & 3x^2 + 18x + 27 \\
x - \frac{2}{3} & 3x^3 + 16x^2 + 15x - 18 \\
 & 3x^3 - 2x^2 \\
 & - \quad + \\
\hline
 & 18x^2 + 15x \\
 & 18x^2 - 12x \\
 & - \quad + \\
\hline
 & 27x - 18 \\
 & 27x - 18 \\
 & - \quad + \\
\hline
 & 0
\end{array}
$$

Quotient = $3x^2 + 18x + 27$

$\therefore 3x^2 + 18x + 27 = 0$

$3x^2 + 9x + 9x + 27 = 0$

$3x (x + 3) + 9 (x + 3) = 0$

$(x + 3) (3x + 9) = 0$

$(x + 3) = 0$ or $(3x + 9) = 0$

Hence, $x = - 3$ or $x = - 3$

Benefits of RS Aggarwal Solutions for Class 10 Maths Chapter 2 Exercise 2.1

RS Aggarwal Solutions for Class 10 Maths Chapter 2 Exercise 2.1 offers several benefits to students studying for their exams:

Systematic Approach: The solutions are structured to provide a step-by-step method to solve each problem. This helps students understand the logical progression of solving mathematical problems.

Clarity of Concepts: Each solution is crafted to explain the underlying concepts clearly. This clarity aids in building a strong foundation in mathematics.

Variety of Problems: The exercises cover a variety of problem types, ensuring that students are exposed to different scenarios and can apply their knowledge in diverse contexts.

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Self-Assessment: After attempting problems independently, students can use these solutions to verify their answers and identify any mistakes. This self-assessment is essential for improving accuracy and understanding.

Time Management: Efficient use of time is important during exams. Using these solutions can help students learn time management by providing quicker methods to solve problems.