



Quadratic Equation Questions for RRB Group-D PDF

All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, or stored in any retrieval system of any nature without the permission of cracku.in, application for which shall be made to support@cracku.in

Instructions

For the following questions answer them individually

Question 1

Which of the following quadratic equations has real roots?

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

B $2x^2 + 7x + 6 = 0$

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

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

Answer: B

Explanation:

A quadratic equation : $ax^2 + bx + c = 0$ has real roots iff Discriminant, $D = b^2 - 4ac \geq 0$

(A) : $4x^2 - 3x + 6 = 0$

$\Rightarrow D = (-3)^2 - 4(4)(6) = 9 - 96 = -87$

(B) : $2x^2 + 7x + 6 = 0$

$\Rightarrow D = (7)^2 - 4(2)(6) = 49 - 48 = 1$

(C) : $x^2 - 2x + 4 = 0$

$\Rightarrow D = (-2)^2 - 4(1)(4) = 4 - 16 = -12$

(D) : $3x^2 - 4x + 3 = 0$

$\Rightarrow D = (-4)^2 - 4(3)(3) = 16 - 36 = -20$

Thus, the equation : $2x^2 + 7x + 6 = 0$ has real roots.

Question 2

What is the value of m in the quadratic equation $x^2 + mx + 24 = 0$ if one of its roots is $\frac{3}{2}$

A $-\frac{45}{2}$

B 16

C $-\frac{21}{2}$

D $-\frac{35}{2}$

Answer: D

Explanation:

Putting $x = \frac{3}{2}$ in the quadratic equation : $x^2 + mx + 24 = 0$

$\Rightarrow \left(\frac{3}{2}\right)^2 + m\left(\frac{3}{2}\right) + 24 = 0$

$\Rightarrow \frac{9}{4} + 24 + \frac{3m}{2} = 0$

$\Rightarrow \frac{3m}{2} = -\left(\frac{96+9}{4}\right)$

$\Rightarrow m = \frac{-105}{4} \times \frac{2}{3}$

$\Rightarrow m = \frac{-35}{2}$

\Rightarrow Ans - (D)

Question 3

What are the roots of the quadratic equation: $x^2 + 3x - 154 = 0$

A 21, 14

B 11, -14

C 14, -11

D 14, 22

Answer: B

Explanation:

Equation : $x^2 + 3x - 154 = 0$

$\Rightarrow x^2 + 14x - 11x - 154 = 0$

$\Rightarrow x(x + 14) - 11(x + 14) = 0$

$\Rightarrow (x + 14)(x - 11) = 0$

$\Rightarrow x = -14, 11$

\Rightarrow Ans - (B)

RRB Group-D Previous Papers (download PDF)

Question 4

What are the roots of the quadratic equation $21x^2 - 37x - 28 = 0$?

A $-\frac{7}{3}, \frac{4}{7}$

B $\frac{3}{7}, -\frac{7}{4}$

C $\frac{7}{3}, -\frac{4}{7}$

D $-\frac{3}{7}, \frac{7}{4}$

Answer: C

Explanation:

Equation : $21x^2 - 37x - 28 = 0$

$\Rightarrow 21x^2 - 49x + 12x - 28 = 0$

$\Rightarrow 7x(3x - 7) + 4(3x - 7) = 0$

$\Rightarrow (7x + 4)(3x - 7) = 0$

$\Rightarrow x = -\frac{4}{7}, \frac{7}{3}$

\Rightarrow Ans - (C)

Question 5

Which of the following quadratic equations has real roots?

A $4x^2 - 9x + 6 = 0$

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

C $2x^2 - 7x + 6 = 0$

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

Answer: C

Explanation:

A quadratic equation : $ax^2 + bx + c = 0$ has real roots iff Discriminant, $D = b^2 - 4ac \geq 0$

(A) : $4x^2 - 9x + 6 = 0$

$\Rightarrow D = (-9)^2 - 4(4)(6) = 81 - 96 = -15$

(B) : $3x^2 - 2x + 6 = 0$

$\Rightarrow D = (-2)^2 - 4(3)(6) = 4 - 72 = -68$

(C) : $2x^2 - 7x + 6 = 0$

$\Rightarrow D = (-7)^2 - 4(2)(6) = 49 - 48 = 1$

(D) : $x^2 - 2x + 2 = 0$

$\Rightarrow D = (-2)^2 - 4(1)(2) = 4 - 8 = -4$

Thus, the equation : $2x^2 - 7x + 6 = 0$ has real roots.

Question 6

What are the roots of the quadratic equation $4x^2 + 6x - 18 = 0$?

A 3, -3

B 3, 6

C $3/2, -3$

D 3, 3

Answer: C

Explanation:

Expression : $4x^2 + 6x - 18 = 0$

$\Rightarrow 4x^2 - 6x + 12x - 18 = 0$

$\Rightarrow 2x(2x - 3) + 6(2x - 3) = 0$

$\Rightarrow (2x + 6)(2x - 3) = 0$

$\Rightarrow x = \frac{3}{2}, -3$

\Rightarrow Ans - (C)

20 RRB Group-D Mocks - Just Rs. 149

Question 7

Which of the following quadratic equations has real roots?

A $3x^2 - 5x + 2 = 0$

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

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

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

Answer: A

Explanation:

A quadratic equation : $ax^2 + bx + c = 0$ has real roots iff Discriminant, $D = b^2 - 4ac \geq 0$

(A) : $3x^2 - 5x + 2 = 0$

$$\Rightarrow D = (-5)^2 - 4(3)(2) = 25 - 24 = 1$$

(B) : $3x^2 - 4x + 2 = 0$

$$\Rightarrow D = (-4)^2 - 4(3)(2) = 16 - 24 = -8$$

(C) : $4x^2 - 3x + 2 = 0$

$$\Rightarrow D = (-3)^2 - 4(4)(2) = 9 - 32 = -23$$

(D) : $5x^2 - 2x + 2 = 0$

$$\Rightarrow D = (-2)^2 - 4(5)(2) = 4 - 40 = -36$$

Thus, the equation : $3x^2 - 5x + 2 = 0$ has real roots.

Question 8

Find the roots of the quadratic equation : $27x^2 + 57x - 14 = 0$

A $2/9, 7/3$

B $2/9, -7/3$

C $9/2, 3/7$

D $9/2, 3/7$

Answer: B

Explanation:

Expression : $27x^2 + 57x - 14 = 0$

$$\Rightarrow 27x^2 - 6x + 63x - 14 = 0$$

$$\Rightarrow 3x(9x - 2) + 7(9x - 2) = 0$$

$$\Rightarrow (3x + 7)(9x - 2) = 0$$

$$\Rightarrow x = \frac{2}{9}, \frac{-7}{3}$$

Question 9

Which of the following is not a quadratic equation?

A $3x(x + 5) - 11 = 2x(x - 2) + 6$

B $4x(x + 3) + 7 = 4x(x - 11) + 9$

C $x(x + 2) - 15 = x(2x - 5) + 11$

D $4x^2 - 6x - 9 = 0$

Answer: B

Explanation:

(A) : $3x(x + 5) - 11 = 2x(x - 2) + 6$

$$\Rightarrow 3x^2 + 15x - 11 = 2x^2 - 4x + 6$$

$$\Rightarrow x^2 + 19x - 17 = 0$$

(B) : $4x(x + 3) + 7 = 4x(x - 11) + 9$

$$\Rightarrow 4x^2 + 12x + 7 = 4x^2 - 44x + 9$$

$$\Rightarrow 56x - 2 = 0$$

$$(C) : x(x + 2) - 15 = x(2x - 5) + 11$$

$$\Rightarrow x^2 + 2x - 15 = 2x^2 - 5x + 11$$

$$\Rightarrow x^2 - 7x + 26 = 0$$

$$(D) : 4x^2 - 6x - 9 = 0$$

\therefore Option (B) is not a quadratic equation.

RRB Group-D Free Mock TestsRRB Group-D Free Mock Tests

Question 10

Find the difference of the roots of the equation $x^2 - 8x + 13 = 0$

A 2

B 4

C $2\sqrt{3}$

D $4\sqrt{3}$

Answer: C

Explanation:

let a and b be the roots.

$$a + b = 8$$

$$ab = 13$$

$$a - b = \sqrt{(a + b)^2 - 4ab}$$

$$= \sqrt{8^2 - 4 * 13}$$

$$= \sqrt{12}$$

$$= 2\sqrt{3}$$

RRB Group-D Previous Papers (download PDF)

20 RRB Group-D Mocks - Just Rs. 149

RRB Group-D Free Mock TestsRRB Group-D Free Mock Tests

RRB NTPC Previous Papers (Download PDF)

Daily Free RRB Online Test

770 Mocks (Cracku Pass) - Just Rs. 199

100+ Free Online GK Tests

RRB Free Videos (You Tube Channel)

RRB General Science Notes (Download Pdf)

RRB GK Material (Download Pdf)

**Get Free Study Material & Updates - Whatsapp "Updates" to
7661025557**

Latest Job Updates on Telegram - Join here