



Quadratic Equation Questions for IBPS PO PDF

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Instructions

In the following questions two equations numbered I and II are given. You have to solve both the equations and

Give answer a: if $x > y$

Give answer b: if $x \geq y$

Give answer c: if $x < y$

Give answer d: if $x \leq y$

Give answer e: if $x = y$ or the relationship cannot be established.

Question 1

I. $x^2 - 3x - 88 = 0$

II. $y^2 + 8y - 48 = 0$

A if $x > y$

B if $x \geq y$

C if $x < y$

D if $x \leq y$

E if $x = y$ or the relationship cannot be established.

Answer: E

Explanation:

I. $x^2 - 3x - 88 = 0$

$\Rightarrow x^2 + 8x - 11x - 88 = 0$

$\Rightarrow x(x + 8) - 11(x + 8) = 0$

$\Rightarrow (x + 8)(x - 11) = 0$

$\Rightarrow x = -8, 11$

II. $y^2 + 8y - 48 = 0$

$\Rightarrow y^2 + 12y - 4y - 48 = 0$

$\Rightarrow y(y + 12) - 4(y + 12) = 0$

$\Rightarrow (y + 12)(y - 4) = 0$

$\Rightarrow y = -12, 4$

\therefore No relation can be established.

Question 2

I. $5x^2 + 29x + 20 = 0$

II. $25y^2 + 25y + 6 = 0$

A if $x > y$

B if $x \geq y$

C if $x < y$

D if $x \leq y$

E if $x = y$ or the relationship cannot be established.

Answer: C

Explanation:

$$I. 5x^2 + 29x + 20 = 0$$

$$\Rightarrow 5x^2 + 25x + 4x + 20 = 0$$

$$\Rightarrow 5x(x + 5) + 4(x + 5) = 0$$

$$\Rightarrow (x + 5)(5x + 4) = 0$$

$$\Rightarrow x = -5, \frac{-4}{5}$$

$$II. 25y^2 + 25y + 6 = 0$$

$$\Rightarrow 25y^2 + 10y + 15y + 6 = 0$$

$$\Rightarrow 5y(5y + 2) + 3(5y + 2) = 0$$

$$\Rightarrow (5y + 3)(5y + 2) = 0$$

$$\Rightarrow y = \frac{-3}{5}, \frac{-2}{5}$$

Therefore $x < y$

Question 3

I. $2x^2 - 11x + 12 = 0$

II. $2y^2 - 19y + 44 = 0$

A if $x > y$

B if $x \geq y$

C if $x < y$

D if $x \leq y$

E if $x = y$ or the relationship cannot be established.

Answer: D

Explanation:

I. $2x^2 - 11x + 12 = 0$

$$\Rightarrow 2x^2 - 8x - 3x + 12 = 0$$

$$\Rightarrow 2x(x - 4) - 3(x - 4) = 0$$

$$\Rightarrow (x - 4)(2x - 3) = 0$$

$$\Rightarrow x = 4, \frac{3}{2}$$

II. $2y^2 - 19y + 44 = 0$

$$\Rightarrow 2y^2 - 8y - 11y + 44 = 0$$

$$\Rightarrow 2y(y - 4) - 11(y - 4) = 0$$

$$\Rightarrow (y - 4)(2y - 11) = 0$$

$$\Rightarrow y = 4, \frac{11}{2}$$

$\therefore x \leq y$

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Question 4

I. $3x^2 + 10x + 8 = 0$

II. $3y^2 + 7y + 4 = 0$

A if $x > y$

B if $x \geq y$

C if $x < y$

D if $x \leq y$

E if $x = y$ or the relationship cannot be established.

Answer: D

Explanation:

I. $3x^2 + 10x + 8 = 0$

$\Rightarrow 3x^2 + 6x + 4x + 8 = 0$

$\Rightarrow 3x(x + 2) + 4(x + 2) = 0$

$\Rightarrow (x + 2)(3x + 4) = 0$

$\Rightarrow x = -2, \frac{-4}{3}$

II. $3y^2 + 7y + 4 = 0$

$\Rightarrow 3y^2 + 3y + 4y + 4 = 0$

$\Rightarrow 3y(y + 1) + 4(y + 1) = 0$

$\Rightarrow (y + 1)(3y + 4) = 0$

$\Rightarrow y = -1, \frac{-4}{3}$

$\therefore x \leq y$

Question 5

I. $2x^2 + 21x + 10 = 0$

II. $3y^2 + 13y + 14 = 0$

A if $x > y$

B if $x \geq y$

C if $x < y$

D if $x \leq y$

E if $x = y$ or the relationship cannot be established.

Answer: E

Explanation:

I. $2x^2 + 21x + 10 = 0$

$\Rightarrow 2x^2 + x + 20x + 10 = 0$

$\Rightarrow x(2x + 1) + 10(2x + 1) = 0$

$\Rightarrow (x + 10)(2x + 1) = 0$

$\Rightarrow x = -10, \frac{-1}{2}$

II. $3y^2 + 13y + 14 = 0$

$\Rightarrow 3y^2 + 6y + 7y + 14 = 0$

$\Rightarrow 3y(y + 2) + 7(y + 2) = 0$

$$\Rightarrow (y + 2)(3y + 7) = 0$$

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

∴ No relation can be established.

Instructions

In the following questions two equations numbered I and II are given. You have to solve both equations and Give answer If

- a. $x > y$
- b. $x \geq y$
- c. $x < y$
- d. $x \leq y$
- e. $x = y$ or the relationship cannot be established

Question 6

I. $x^2 - 7x + 10 = 0$

II. $y^2 + 11y + 10 = 0$

- A $x > y$
- B $x \geq y$
- C $x < y$
- D $x \leq y$
- E $x = y$ or the relationship cannot be established

Answer: A

Explanation:

I. $x^2 - 7x + 10 = 0$

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

$$\Rightarrow x(x - 5) - 2(x - 5) = 0$$

$$\Rightarrow (x - 5)(x - 2) = 0$$

$$\Rightarrow x = 5, 2$$

II. $y^2 + 11y + 10 = 0$

$$\Rightarrow y^2 + 10y + y + 10 = 0$$

$$\Rightarrow y(y + 10) + 1(y + 10) = 0$$

$$\Rightarrow (y + 10)(y + 1) = 0$$

$$\Rightarrow y = -10, -1$$

∴ $x > y$

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Question 7

I. $x^2 + 28x + 192 = 0$

II. $y^2 + 16y + 48 = 0$

- A $x > y$
- B $x \geq y$

C $x < y$

D $x \leq y$

E $x = y$ or the relationship cannot be established

Answer: D

Explanation:

I. $x^2 + 28x + 192 = 0$

$\Rightarrow x^2 + 16x + 12x + 192 = 0$

$\Rightarrow x(x + 16) + 12(x + 16) = 0$

$\Rightarrow (x + 16)(x + 12) = 0$

$\Rightarrow x = -16, -12$

II. $y^2 + 16y + 48 = 0$

$\Rightarrow y^2 + 12y + 4y + 48 = 0$

$\Rightarrow y(y + 12) + 4(y + 12) = 0$

$\Rightarrow (y + 12)(y + 4) = 0$

$\Rightarrow y = -12, -4$

$\therefore x \leq y$

Question 8

I. $2x - 3y = -3.5$

II. $3x + 2y = -6.5$

A $x > y$

B $x \geq y$

C $x < y$

D $x \leq y$

E $x = y$ or the relationship cannot be established

Answer: C

Explanation:

I: $2x - 3y = -3.5$

II: $3x + 2y = -6.5$

Multiplying eqn(I) by 2 and eqn(II) by 3, and then adding both equations, we get:

$\Rightarrow (4x + 9x) + (-6y + 6y) = (-7 - 19.5)$

$\Rightarrow 13x = -26.5$

$\Rightarrow x = \frac{-26.5}{13} \approx -2$

$\Rightarrow y = \frac{3x + 6.5}{2} = 0.25$

Hence $x < y$

Question 9

I. $x^2 + 8x + 15 = 0$

II. $y^2 + 11y + 30 = 0$

- A $x > y$
- B $x \geq y$
- C $x < y$
- D $x \leq y$
- E $x = y$ or the relationship cannot be established

Answer: B

Explanation:

I. $x^2 + 8x + 15 = 0$

$\Rightarrow x^2 + 5x + 3x + 15 = 0$

$\Rightarrow x(x + 5) + 3(x + 5) = 0$

$\Rightarrow (x + 5)(x + 3) = 0$

$\Rightarrow x = -5, -3$

II. $y^2 + 11y + 30 = 0$

$\Rightarrow y^2 + 5y + 6y + 30 = 0$

$\Rightarrow y(y + 5) + 6(y + 5) = 0$

$\Rightarrow (y + 6)(y + 5) = 0$

$\Rightarrow y = -6, -5$

$\therefore x \geq y$

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Question 10

I. $x = \sqrt{3136}$

II. $y^2 = 3136$

- A $x > y$
- B $x \geq y$
- C $x < y$
- D $x \leq y$
- E $x = y$ or the relationship cannot be established

Answer: B

Explanation:

I. $x = \sqrt{3136}$

$\Rightarrow x = 56$

II. $y^2 = 3136$

$\Rightarrow y = \sqrt{3136} = \pm 56$

$\therefore x \geq y$

Instructions

In each of these questions two equations numbered I and II are given. You have to solve both the equations and –

- Give answer a: if $x < y$
Give answer b: if $x \leq y$
Give answer c: if $x > y$
Give answer d: if $x \geq y$
Give answer e: if $x = y$ or the relationship cannot be established.

Question 11

I. $x^2 + 13x + 42 = 0$

II. $y^2 + 19y + 90 = 0$

- A if $x < y$
B if $x \leq y$
C if $x > y$
D if $x \geq y$
E if $x = y$ or the relationship cannot be established.

Answer: C

Explanation:

I. $x^2 + 13x + 42 = 0$

$\Rightarrow x^2 + 7x + 6x + 42 = 0$

$\Rightarrow x(x + 7) + 6(x + 7) = 0$

$\Rightarrow (x + 7)(x + 6) = 0$

$\Rightarrow x = -7, -6$

II. $y^2 + 19y + 90 = 0$

$\Rightarrow y^2 + 9y + 10y + 90 = 0$

$\Rightarrow y(y + 9) + 10(y + 9) = 0$

$\Rightarrow (y + 9)(y + 10) = 0$

$\Rightarrow y = -9, -10$

$\therefore x > y$

Question 12

I. $x^2 - 15x + 56 = 0$

II. $y^2 - 23y + 132 = 0$

- A if $x < y$
B if $x \leq y$
C if $x > y$
D if $x \geq y$
E if $x = y$ or the relationship cannot be established.

Answer: A

Explanation:

I. $x^2 - 15x + 56 = 0$

$\Rightarrow x^2 - 8x - 7x + 56 = 0$

$$\Rightarrow x(x - 8) - 7(x - 8) = 0$$

$$\Rightarrow (x - 8)(x - 7) = 0$$

$$\Rightarrow x = 8, 7$$

$$\text{II. } y^2 - 23y + 132 = 0$$

$$\Rightarrow y^2 - 11y - 12y + 132 = 0$$

$$\Rightarrow y(y - 11) - 12(y - 11) = 0$$

$$\Rightarrow (y - 11)(y - 12) = 0$$

$$\Rightarrow y = 11, 12$$

$$\therefore x < y$$

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Question 13

$$\text{I. } x^2 + 7x + 12 = 0$$

$$\text{II. } y^2 + 6y + 8 = 0$$

A if $x < y$

B if $x \leq y$

C if $x > y$

D if $x \geq y$

E if $x = y$ or the relationship cannot be established.

Answer: E

Explanation:

$$\text{I. } x^2 + 7x + 12 = 0$$

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

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

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

$$\Rightarrow x = -3, -4$$

$$\text{II. } y^2 + 6y + 8 = 0$$

$$\Rightarrow y^2 + 4y + 2y + 8 = 0$$

$$\Rightarrow y(y + 4) + 2(y + 4) = 0$$

$$\Rightarrow (y + 4)(y + 2) = 0$$

$$\Rightarrow y = -4, -2$$

Because $-2 > -4$ and $-3 > -4$

Therefore, no relation can be established.

Question 14

$$\text{I. } x^2 - 22x + 120 = 0$$

$$\text{II. } y^2 - 26y + 168 = 0$$

A if $x < y$

- B if $x \leq y$
- C if $x > y$
- D if $x \geq y$
- E if $x = y$ or the relationship cannot be established.

Answer: B

Explanation:

$$I. x^2 - 22x + 120 = 0$$

$$\Rightarrow x^2 - 10x - 12x + 120 = 0$$

$$\Rightarrow x(x - 10) - 12(x - 10) = 0$$

$$\Rightarrow (x - 10)(x - 12) = 0$$

$$\Rightarrow x = 10, 12$$

$$II. y^2 - 26y + 168 = 0$$

$$\Rightarrow y^2 - 12y - 14y + 168 = 0$$

$$\Rightarrow y(y - 12) - 14(y - 12) = 0$$

$$\Rightarrow (y - 12)(y - 14) = 0$$

$$\Rightarrow y = 12, 14$$

$$\therefore x \leq y$$

Question 15

$$I. x^2 + 12x + 32 = 0$$

$$II. y^2 + 17y + 72 = 0$$

- A if $x < y$
- B if $x \leq y$
- C if $x > y$
- D if $x \geq y$
- E if $x = y$ or the relationship cannot be established.

Answer: D

Explanation:

$$I. x^2 + 12x + 32 = 0$$

$$\Rightarrow x^2 + 8x + 4x + 32 = 0$$

$$\Rightarrow x(x + 8) + 4(x + 8) = 0$$

$$\Rightarrow (x + 8)(x + 4) = 0$$

$$\Rightarrow x = -8, -4$$

$$II. y^2 + 17y + 72 = 0$$

$$\Rightarrow y^2 + 9y + 8y + 72 = 0$$

$$\Rightarrow y(y + 9) + 8(y + 9) = 0$$

$$\Rightarrow (y + 9)(y + 8) = 0$$

$$\Rightarrow y = -9, -8$$

$\therefore x \geq y$

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