Quadratic Equation Questions For IBPS RRB Clerk

Instructions

In each of these questions, two equations are given. You have to solve these equations and find out the values of x and y and give answer

Question 1

I: $x^2 - 2x - 323 = 0$
II: $y^2 - 40y + 399 = 0$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established

Answer: D

Explanation:
I: $x^2 - 2x - 323 = 0$
$x^2 - 19x + 17x - 323 = 0$
$x(x - 19) + 17(x - 19) = 0$
$(x - 19)(x + 17) = 0$
$x = 19$ or $x = -17$

II: $y^2 - 40y + 399 = 0$
$y^2 - 19y - 21y + 399 = 0$
$y(y - 19) - 21(y - 19) = 0$
$(y - 19)(y - 21) = 0$
$y = 19$ or $y = 21$

Comparing x and y,
$19 = 19$
$19 < 21$
$-17 < 19$
$-17 < 21$
Therefore, x is less than or equal to y.

Question 2

I: $\frac{\sqrt{x - 14}}{\sqrt{y}} + \sqrt{1444} = \sqrt{2116}$
II: $\sqrt{3}y = 64^{\frac{1}{18}}$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established

Answer: A

Explanation:
I: $\frac{\sqrt{x - 14}}{\sqrt{y}} + \sqrt{1444} = \sqrt{2116}$

$\sqrt{x-14}+38=46$
$\sqrt{x-14}=8$
$x-14=64$
$x=78$
$\sqrt{y}$
II: $\sqrt{3}y=64^{\frac{1}{18}}$

$y^{\frac{1}{2}}$
$y^{\frac{1}{3}}=(64^{\frac{1}{3}})^{\frac{1}{6}}$

$y^{\frac{1}{6}}=4^{\frac{1}{6}}$
$y=4$

Comparing x and y,
$78>4$
Therefore,x is greater than y.

Question 3

I: $x^2-170x+7221=0$
II: $3y^2+170y+2407=0$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established

Answer: A

Explanation:
I: $x^2-170x+7221=0$
$x^2-87x-83x+7221=0$
$x(x-87)-83(x-87)=0$
$(x-87)(x-83)=0$
$x=87$ or $x=83$

II: $3y^2+170y+2407=0$
$3y^2+87y+83y+2407=0$
$3y(y+29)+83(y+29)=0$
$(y+29)(3y+83)=0$
$y=-29$ or $y=-\frac{83}{3}$

Comparing x and y
$87>-29$
$87>-\frac{83}{3}$
$83>-29$
$83>-\frac{83}{3}$
Therefore, x is greater than y.

Question 4

I: $x^2 + 12\sqrt{11} + 143 = 0$
II: $y^2 - 22\sqrt{3}y + 360 = 0$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established.

Answer: B

Explanation:
I: $x^2 + 12\sqrt{11} + 143 = 0$
$x^2 + 13\sqrt{11}x + \sqrt{11}x + 143 = 0$
$x(x + 13\sqrt{11}) + \sqrt{11}(x + 13\sqrt{11}) = 0$
$(x + 13\sqrt{11})(x + \sqrt{11}) = 0$
$x = -13\sqrt{11}$ or $x = -\sqrt{11}$
The approximate value of $\sqrt{11} = 3$
Then, $x = -39$ or $x = -3$

II: $y^2 - 22\sqrt{3}y + 360 = 0$
$y^2 - 20\sqrt{3}y - 12\sqrt{3}y + 360 = 0$
$y(y - 20\sqrt{3}) - 12\sqrt{3}(y - 20\sqrt{3}) = 0$
$(y - 20\sqrt{3})(y - 12\sqrt{3}) = 0$
$y = 20\sqrt{3}$ or $y = 12\sqrt{3}$
The approximate value of $\sqrt{3} = 1$
Then, $x = 20$ or $x = 12$

Comparing x and y,
Both the x values are negative and both the y values are positive.
Therefore, x is less than y.

Question 5

I: $x^3 - 128 = 1727872$
$\sqrt{2}y^3$
II: $\sqrt{3}y^2 = 121^{\frac{5}{6}}$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established.

Answer: B

Explanation:
I: $x^3 - 128 = 1727872$
$x^3 = 1728000$
$x = 120$

$\sqrt{2}y^3$
II: $\sqrt{3}y^2 = 121^{\frac{5}{6}}$

$y^{\frac{3}{2}}$
$y^{\frac{2}{3}} = 121^{\frac{5}{5}}$

$y^{\frac{3}{2}-\frac{2}{3}} = 121^{\frac{5}{6}}$
$y^{\frac{5}{6}} = 121^{\frac{5}{6}}$
$y = 121$

Comparing x and y,
$120 < 121$.
Therefore, x is less than y.

Instructions

In each of these questions, two equations are given. You have to solve these equations and find out the values of x and y and give answer

Question 6

I: $x^2 - x - 812 = 0$
II: $y^2 + y - 1332 = 0$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established.

Answer: E

Explanation:
I: $x^2 - x - 812 = 0$
$x^2 - 29x + 28x - 812 = 0$
$x(x - 29) + 28(x - 29) = 0$
$(x - 29)(x + 28) = 0$
$x = 29$ or $x = -28$

II: $y^2 + y - 1332 = 0$
$y^2 + 37y - 36y - 1332 = 0$
$y(y + 37) - 36(y + 37) = 0$
$(y + 37)(y - 36) = 0$
$y = -37$ or $y = 36$

Comparing x and y,
$29 > -37$
$29 < 36$
$-28 > -37$
$-29 < 36$

Therefore, The relationship between x and y cannot be established.

Question 7

I: $x^2 + 0.25x - 60 = 0$
II: $y^2 - 0.33y - 8 = 0$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established.

Answer: E

Explanation:

I: $x^2 + \underset{x}{0.25x} - 60 = 0$

$x^2 + 4 - 60 = 0$

$4x^2 + x - 240 = 0$

$4x^2 + 16x - 15x - 240 = 0$

$4x(x + 16) - 15(x + 16) = 0$

$(x + 16)(4x - 15) = 0$

$x = -16$ or $x = \underset{4}{15}$

II: $y^2 - \underset{y}{0.33y} - 8 = 0$

$y^2 - 3 - 8 = 0$

$3y^2 - y - 24 = 0$

$3y^2 - 9y + 8y - 24 = 0$

$3y(y - 3) + 8(y - 3) = 0$

$(y - 3)(3y + 8) = 0$

$y = 3$ or $y = \underset{3}{-8}$

Comparing x and y

$-16 < 3$

$-16\dfrac{15}{4}>3$$

$\underset{4}{15} > \underset{3}{-8}$

Therefore, The relationship between x and y cannot be established.

Question 8

I: $\sqrt{x + 14} + \sqrt{841} = \sqrt{1369}$

II: $y^2 + 0.5y - 60 = 0$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established.

Answer: A

Explanation:

I: $\sqrt{x+14}+\sqrt{841}=\sqrt{1369}$
$\sqrt{x+14}+29=37$
$\sqrt{x+14}=8$
$x+14=64$
$x=40$

II: $y^2+0.5y-60=0$
$2y^2+y-120=0$
$2y^2+16y-15y-120=0$
$2y(y+8)-15(y+8)=0$
$(y+8)(2y-15)=0$
$y=-8$ or $y=\frac{15}{2}=7.5$

Comparing x and y
$40>-8$
$40>7.5$
Therefore, x is greater than y.

Question 9

I: $x^2-16\sqrt{5}x+300=0$
II: $y^2-31\sqrt{5}y+750=0$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established.

Answer: E

Explanation:
I: $x^2-16\sqrt{5}x+300=0$
$x^2-10\sqrt{5}x-6\sqrt{5}x+300=0$
$x(x-10\sqrt{5})-6\sqrt{5}(x-10\sqrt{5})=0$
$(x-10\sqrt{5})(x-6\sqrt{5})=0$
$x=10\sqrt{5}$ or $x=6\sqrt{5}$

II: $y^2-31\sqrt{5}y+750=0$
$y^2-25\sqrt{5}y-6\sqrt{5}y+750=0$
$y(y-25\sqrt{5})-6\sqrt{5}(y-25\sqrt{5})=0$
$(y-25\sqrt{5})(y-6\sqrt{5})=0$
$y=25\sqrt{5}$ or $y=6\sqrt{5}$

Comparing x and y,
$10\sqrt{5}<25\sqrt{5}$
$10\sqrt{5}>6\sqrt{5}$
$6\sqrt{5}<25\sqrt{5}$
$6\sqrt{5}=6\sqrt{5}$

Therefore, The relationship between x and y cannot be determined.

Question 10

I: $6\sqrt{x} + \sqrt[5]{x} = \sqrt{x}$

II: $\sqrt[5]{\sqrt[9]{y^2}} = y^{\frac{2}{9}}$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established.

Answer: B

Explanation:

I: $6\sqrt{x} + \sqrt[5]{x} = \sqrt{x}$

$6x + 5$
$\sqrt{x} = \sqrt{x}$

$6x + 5 = x$
$5x = -5$
$x = -1$

II: $\sqrt[5]{\sqrt[9]{y^2}} = y^{\frac{2}{9}}$

$2^{\frac{5}{9}} = y^{\frac{2}{5}} \times y^{\frac{1}{3}}$
$2^{\frac{5}{9}} = y^{\frac{9}{5}}$
$y = 2$

By comparing x and y,
$-1 < 2$

Therefore, x is less than y.

Instructions

In each of these questions, two equations are given. You have to solve these equations and find out the values of x and y and give answer

Question 11

I: $x^2 + 15\sqrt{3}x - 378 = 0$
II: $y^2 - 6\sqrt{2}y - 224 = 0$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established.

Answer: E

Explanation:
I: $x^2 + 15\sqrt{3}x - 378 = 0$
$x^2 + 21\sqrt{3}x - 6\sqrt{3}x - 378 = 0$
$x(x + 21\sqrt{3}) - 6\sqrt{3}(x + 21\sqrt{3}) = 0$
$(x + 21\sqrt{3})(x - 6\sqrt{3}) = 0$
$x = -21\sqrt{3}$ or $x = 6\sqrt{3}$
Approximate value of $\sqrt{3} = 2$.
Then, $x = -21 \times 2 = -42$ or $x = 6 \times 2 = 12$

II: $y^2 - 6\sqrt{2}y - 224 = 0$
$y^2 - 14\sqrt{2}y + 8\sqrt{2}y - 224 = 0$
$y(y - 14\sqrt{2}) + 8\sqrt{2}(y - 14\sqrt{2}) = 0$
$(y - 14\sqrt{2})(y + 8\sqrt{2}) = 0$
$y = 14\sqrt{2}$ or $y = -8\sqrt{2}$
Approximate value of $\sqrt{2} = 1$
Then, $y = 14$ or $y = -8$

By comparing x and y,
$-42 < 14$
$-42 < -8$
$12 < 14$
$12 > -8$

Therefore, The relationship between x and y cannot be determined.

Question 12

I: $\frac{19}{\sqrt{x}} + \frac{18}{\sqrt{x}} = \sqrt{x}$

II: $\frac{1369}{\sqrt{y^{-1}}} = y^{\frac{5}{2}}$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established.

Answer: C

Explanation:
I: $\frac{19}{\sqrt{x}} + \frac{18}{\sqrt{x}} = \sqrt{x}$

$\frac{19 + 18}{\sqrt{x}} = \sqrt{x}$

$x = 37$

II: $\frac{1369}{\sqrt{y^{-1}}} = y^{\frac{5}{2}}$

1369

$y^{\frac{-1}{2}} = y^{\frac{5}{2}}$

$y^{\frac{5-1}{2}} = 1369$

$y^2 = 1369$

$y = -37$ or $y = +37$

By comparing x and y,

$37 > -37$

$37 = 37$

Therefore, x is greater than or equal to y.

Question 13

I: $3x^2 - 76x + 481 = 0$

II: $y^2 + 6y - 187 = 0$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established.

Answer: A

Explanation:

I: $3x^2 - 76x + 481 = 0$

$3x^2 - 39x - 37x + 481 = 0$

$3x(x - 13) - 37(x - 13) = 0$

$(x - 13)(3x - 37) = 0$

$x = 13$ or $x = \frac{37}{3}$

II: $y^2 + 6y - 187 = 0$

$y^2 + 17y - 11y - 187 = 0$

$y(y + 17) - 11(y + 17) = 0$

$(y + 17)(y - 11) = 0$

$y = -17$ or $y = 11$

By comparing x and y,

$13 > -17$

$13 > 11$

$\frac{37}{3} > -17$

$\frac{37}{3} > 11$

Therefore, x is greater than y.

Question 14

I: $x^2 + 3x - 270 = 0$

II: $y^2 + 4y - 285 = 0$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established.

Answer: E

Explanation:
I: $x^2 + 3x - 270 = 0$
$x^2 + 18x - 15x - 270 = 0$
$x(x + 18) - 15(x + 18) = 0$
$(x - 15)(x + 18) = 0$
$x = 15$ or $x = -18$

II: $y^2 + 4y - 285 = 0$
$y^2 + 19y - 15y - 285 = 0$
$y(y + 19) - 15(y + 19) = 0$
$(y - 15)(y + 19) = 0$
$y = 15$ or $y = -19$

By comparing x and y,
$15 = 15$
$15 > -19$
$-18 < 15$
$-18 > -19$
Therefore, The relationship between x and y cannot be established.

Question 15

I: $x = \sqrt{9604}$
II: $y^2 = 7569$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established.

Answer: A

Explanation:
I: $x = \sqrt{9604}$
$x = 98$
II: $y^2 = 7569$
$y = \pm 87$
$y = -87$ or $y = 87$

By comparing x and y,
$98 > -87$
$98 > 87$
Therefore, x is greater than y.

IBPS RRB PO Free Mock Test

Instructions

In each of these questions, two equations are given. You have to solve these equations and find out the values of x and y and give answer

Question 16

I: $3x^2 + 5x - 68 = 0$
II: $y^2 - 33y + 272 = 0$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established.

Answer: B

Explanation:
I: $3x^2 + 5x - 68 = 0$
$3x^2 - 12x + 17x - 68 = 0$
$3x(x - 4) + 17(x - 4) = 0$
$(x - 4)(3x + 17) = 0$
$x = 4$ or $x = \frac{-17}{3}$

II: $y^2 - 33y + 272 = 0$
$y^2 - 16y - 17y + 272 = 0$
$y(y - 16) - 17(y - 16) = 0$
$(y - 16)(y - 17) = 0$
$y = 16$ or $y = 17$

By comparing x and y values,
$4 < 16$
$4 < 17$
$\frac{-17}{3} < 16$
$\frac{-17}{3} < 17$
Therefore, x is less than y.

Question 17

I: $x^2 + 6x - 1147 = 0$
II: $y^2 - 6x - 667 = 0$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established.

Answer: E

Explanation:
I: $x^2 + 6x - 1147 = 0$

$x^2 + 37x - 31x - 1147 = 0$
$x(x + 37) - 31(x + 37) = 0$
$(x + 37)(x - 31) = 0$
$x = -37$ or $x = 31$

II: $y^2 - 6x - 667 = 0$
$y^2 - 29y + 23y - 667 = 0$
$y(y - 29) + 23(y - 29) = 0$
$(y - 29)(y + 23) = 0$
$y = 29$ or $y = -23$

By comparing x and y,
$-37 < 29$
$-37 < -23$
$31 > 29$
$31 > -23$
Therefore, The relationship between x and y cannot be established.

Question 18

I: $x^2 = 13456$
II: $y = \sqrt{15129}$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established.

Answer: B

Explanation:
I: $x^2 = 13456$
$x = \pm 116$
$x = -116$ or $x = 116$

II: $y = \sqrt{15129}$
$y = 123$

By comparing x and y values,
$-116 < 123$
$116 < 123$
Therefore, x is less than y.

Question 19

I: $2x^2 - 3x - 629 = 0$
II: $y^2 - 4y - 252 = 0$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established.

Answer: E

Explanation:
I: $2x^2 - 3x - 629 = 0$
$2x^2 + 34x - 37x - 629 = 0$
$2x(x + 17) - 37(x + 17) = 0$
$(x + 17)(2x - 37) = 0$
$x = -17$ or $x = \frac{37}{2}$

II: $y^2 - 4y - 252 = 0$
$y^2 - 18y + 14y - 252 = 0$
$y(y - 18) + 14(y - 18) = 0$
$(y - 18)(y + 14) = 0$
$y = 18$ or $y = -14$

By comparing x and y values,
$-17 < 18$
$-17 < -14$
$\frac{37}{2} > 18$

$\frac{37}{2} > -14$

Therefore, The relationship between x and y cannot be determined.

Question 20

I: $x^2 + x - 306 = 0$
II: $y^2 + 5y - 696 = 0$

A x is greater than y

B x is less than y

C x is greater than or equal to y

D x is less than or equal to y

E x is equal to y (or) The relationship between x and y cannot be established.

Answer: E

Explanation:
I: $x^2 + x - 306 = 0$
$x^2 + 18x - 17x - 306 = 0$
$x(x + 18) - 17(x + 18) = 0$
$(x + 18)(x - 17) = 0$
$x = -18$ or $x = 17$

II: $y^2 + 5y - 696 = 0$
$y^2 + 29y - 24y - 696 = 0$
$y(y + 29) - 24(y + 29) = 0$
$(y + 29)(y - 24) = 0$
$y = -29$ or $y = 24$

By comparing x and y values,
-18 > -29
18 < 24
17 > -29

Therefore, The relationship between x and y cannot be established.