



MISSION BANK 2024



आरंभ बैच

MATHS

QUADRATIC EQUATION

PART 2

लग जाओ 2024 के लिए

Day-6

LIVE 08:00 AM





$$x \rightarrow (-7\sqrt{3}, +4\sqrt{3}) \quad | \quad y \rightarrow (-5\sqrt{3}, -4\sqrt{3})$$

$x < y$
 $x > y$

Question 21-

(i) $x^2 + 3\sqrt{3}x - 84 = 0$

(ii) $y^2 + 9\sqrt{3}x + 60 = 0$

(i) $x > y$

(ii) $x < y$

(iii) $x \geq y$

(iv) $x \leq y$

~~(v)~~ $x = y$ or relation can't be established,

$$\frac{84}{3} = 28 \begin{matrix} \swarrow 7 \\ \searrow 4 \end{matrix}$$

$$\frac{60}{3} = 20 \begin{matrix} \swarrow 5 \\ \searrow 4 \end{matrix}$$



$$\textcircled{1} x \rightarrow (+4, -4) \quad | \quad y \rightarrow (+2, -2)$$

$$x \rightarrow (+, -) \quad y \rightarrow (+, -)$$

$$12y^2 = 48$$

$$y^2 = 4$$

Question 22-

(i) $484^{\frac{1}{2}} x^2 - 96 = 256$

(ii) $144^{\frac{1}{2}} y^2 + 343 = 391$

$$22x^2 = \frac{16}{352}$$

$$x^2 = 16$$

$$x =$$

- (i) $x > y$
- (ii) $x < y$
- (iii) $x \geq y$
- (iv) $x \leq y$
- (v) $x = y$ or relation can't be established,



$$I = x$$
$$II = (x+1)$$

Question 23- The product of two consecutive positive integer is 306. Find the smaller number.

प्रश्न 23- दो क्रमागत धनात्मक पूर्णाकों का गुणनफल 306 है छोटी संख्या ज्ञात कीजिये

$$x(x+1) = 306$$
$$x^2 + x - 306 = 0$$
$$x \rightarrow (-18, 17)$$

$$x \neq -18$$
$$x = \underline{\underline{17}}$$

| | |
|---------------|-----|
| 2 | 306 |
| 3 | 153 |
| 3 | 51 |
| 17 | 17 |
| <u>18, 17</u> | |

- A. 17
- B. 18
- C. 21
- D. 8
- E. None of these



30

Question 1-

(i) $10p^2 + 11p + 3 = 0$

(ii) $q^2 + 30q + 224 = 0$

$$p \rightarrow \left(\frac{-11 \pm \sqrt{121 - 120}}{20} \right) \quad q \rightarrow (-16, -14)$$

$$p \rightarrow (-0.6, -0.5)$$

$p > q$

- ~~(i)~~ $p > q$
- (ii) $p < q$
- (iii) $p \geq q$
- (iv) $p \leq q$
- (v) $p = q$ or relation can't be established,

| | |
|----|-----|
| 2 | 224 |
| 2 | 112 |
| 2 | 56 |
| 2 | 28 |
| 14 | 14 |



$$P \left(+\frac{25}{10}, -\frac{8}{10} \right) \quad Q \rightarrow (-20, -2)$$
$$P \rightarrow (+2.5, -0.8)$$
$$\Rightarrow p > q$$

Question 2-

(i) $10p^2 - 17p - 20 = 0$

(ii) $q^2 + 22q + 40 = 0$

(i) $p > q$

(ii) $p < q$

(iii) $p \geq q$

(iv) $p \leq q$

(v) $p = q$ or relation can't be established,



$$\textcircled{1} P \rightarrow \left(\begin{array}{cc} 5 & 2 \\ +25 & -6 \\ \hline 3+5 & +55 \end{array} \right) \quad Q \rightarrow (+23 +16)$$

$$P \rightarrow (+1.6, -0.4)$$

$$\underline{\underline{P < Q}}$$

$$\begin{array}{r|l} 2 & 368 \\ \hline 2 & 184 \\ \hline 2 & 92 \\ \hline 2 & 46 \\ \hline & 23 \\ \hline \end{array}$$

$$\underline{\underline{16 \times 23}}$$

Question 3-

(i) $15p^2 - 19p - 10 = 0$

(ii) $q^2 - 39q + 368 = 0$

(i) $p > q$

~~(ii) $p < q$~~

(iii) $p \geq q$

(iv) $p \leq q$

(v) $p = q$ or relation can't be established,



$$P \rightarrow (-5, -4) \quad Q \rightarrow (-16, +15)$$

$$\begin{array}{l} P > Q \leftarrow \\ P < Q \leftarrow \end{array}$$

Question 4-

(i) $p^2 + 9p + 20 = 0$

(ii) $q^2 + q - 240 = 0$

(i) $p > q$

(ii) $p < q$

(iii) $p \geq q$

(iv) $p \leq q$

~~(v)~~ $p = q$ or relation can't be established,



$$P \rightarrow \left(+\frac{25}{10}, -\frac{4}{10} \right) \quad Q \rightarrow (-21, +7)$$

$$P \rightarrow (+, -) \quad Q \rightarrow (-, +)$$

Question 5-

(i) $10p^2 - 21p - 10 = 0$

(ii) $q^2 + 28q - 147 = 0$

(i) $p > q$

(ii) $p < q$

(iii) $p \geq q$

(iv) $p \leq q$

~~(v)~~ $p = q$ or relation can't be established,

21 x 7

 $\frac{1}{5}$

$$P \rightarrow \left(\frac{-10}{3}, \frac{-2}{5} \right) \quad q = (+7, -7)$$

$$P \rightarrow (+0.6, 0.02)$$

$$\checkmark P < q$$

$$\checkmark P > q$$

$$15p^2 - 10p - 3p + 2$$

$$5p(3p-2) - 1(3p-2)$$

Question 6-

(i) $15p^2 - 13p + 2 = 0$

(ii) $q^2 - 49 = 0$

(i) $p > q$

(ii) $p < q$

(iii) $p \geq q$

(iv) $p \leq q$

~~(v)~~ $p = q$ or relation can't be established,



$$P \rightarrow (+19, +6) \quad Q \rightarrow (+15, +8)$$

$$\left. \begin{array}{l} P > Q \\ P < Q \end{array} \right\}$$

Question 7-

(i) $p^2 - 25p + 114 = 0$

(ii) $q^2 - 23q + \cancel{105} = 0$
120

(i) $p > q$

(ii) $p < q$

(iii) $p \geq q$

(iv) $p \leq q$

~~(v)~~ $p = q$ or relation can't be established,



$$P \rightarrow (-8, +7) \quad Q \rightarrow (-17, -3)$$

$$P > Q$$

$$P < Q$$

Question 8-

(i) $p^2 + p - 56 = 0$

(ii) $q^2 + 20q + 51 = 0$

(i) $p > q$

(ii) $p < q$

(iii) $p \geq q$

(iv) $p \leq q$

(v) $p = q$ or relation can't be established,



$$p \rightarrow (-3, -8) \quad q \rightarrow (-2, -4)$$

$$\left. \begin{array}{l} p > q \\ p < q \end{array} \right\}$$

Question 9-

(i) $p^2 + 21p + 104 = 0$

(ii) $q^2 + 28q + 96 = 0$

(i) $p > q$

(ii) $p < q$

(iii) $p \geq q$

(iv) $p \leq q$

~~(v)~~ $p = q$ or relation can't be established,



$$P \rightarrow (-15, 7) \quad Q \rightarrow (-12, 7)$$

$$\left. \begin{array}{l} P < Q \\ P > Q \end{array} \right\}$$

$$Q^2 + 12Q + 7Q + 84 = 0$$

$$Q(Q+12) + 7(Q+12)$$

Question 10-

(i) $p^2 + 8p - 105 = 0$

(ii) $q^2 + 19q + \underline{84} = 0$

(i) $p > q$

(ii) $p < q$

(iii) $p \geq q$

(iv) $p \leq q$

~~(v)~~ $p = q$ or relation can't be established,

$$\begin{array}{r} 5 \overline{)105} \\ \underline{3} \\ 21 \\ \underline{7} \\ 0 \end{array}$$



256

$$P[4P^2 + 24P - 64] = 0 \quad \left| \quad Q \rightarrow \left(-\frac{21}{3}, -\frac{18}{3}\right)\right.$$

$$P = 0 \quad \left| \quad Q \rightarrow (-7, -6)\right.$$

$$P \rightarrow (0, -32, 8)$$

$$\left. \begin{array}{l} P > Q \\ P < Q \end{array} \right\}$$

$$P[4P^2 + 24P - 64] = 0$$

$$P = [0, 32, 8]$$

Question 11-

(i) $4p^3 + 24p^2 - 64p = 0$

(ii) $3q^2 + 39q + 126 = 0$

(i) $p > q$

(ii) $p < q$

(iii) $p \geq q$

(iv) $p \leq q$

(v) $p = q$ or relation can't be established,

| | |
|---|-----|
| 2 | 378 |
| 3 | 189 |
| 3 | 63 |
| 3 | 21 |
| 7 | 7 |



$$P \rightarrow (+6\sqrt{3}, +3\sqrt{3}) \quad Q \rightarrow (+9\sqrt{2}, +2\sqrt{2})$$

$$P \rightarrow (+108, -27) \quad Q \rightarrow (+162, -8)$$

Question 12-

(i) $p^2 - 3\sqrt{3}p - 54 = 0$

(ii) $q^2 - 7\sqrt{2}q - 36 = 0$

(i) $p > q$

(ii) $p < q$

(iii) $p \geq q$

(iv) $p \leq q$

(v) $p = q$ or relation can't be established,

$$\frac{54}{3} = 18 \begin{cases} 6 \\ 3 \end{cases}$$

$$\frac{36}{2} = 18 \begin{cases} 9 \\ 2 \end{cases}$$



Home work

Question 13-

(i) $4p^2 - (16 + \sqrt{10})p - 4\sqrt{10} = 0$

(ii) $4q^2 - (8 + 5\sqrt{7})q - 10\sqrt{7} = 0$

(i) $p > q$

(ii) $p < q$

(iii) $p \geq q$

(iv) $p \leq q$

(v) $p = q$ or relation can't be established,



$$\begin{array}{r}
 (i) \times 4 - (ii) \times 3 \\
 12x + 16y = 72 \\
 \underline{-12x + 9y = 51} \\
 \hline
 \end{array}$$

$$\begin{array}{l}
 7y = 21 \\
 \boxed{y = 3} \\
 3x + 4 \times 3 = 18 \\
 3x = 6 \\
 \boxed{x = 2}
 \end{array}$$

$$\begin{array}{l}
 x = 2 \\
 y = 3
 \end{array}$$

Question 14-

- ~~(i)~~ $3x + 4y = 18$ — (i)
- ~~(ii)~~ $4x + 3y = 17$ — (ii)

- (i) $x > y$
- ~~(ii)~~ $x < y$
- (iii) $x \geq y$
- (iv) $x \leq y$
- (v) $x = y$ or relation can't be established,



$p \rightarrow (-8, +3)$ $q \rightarrow (-8, -5)$

Question 15- $p^2 + 5p - 24 = 0$
 $q^2 + 13q + 40 = 0$

- $p = q$
- $p < q$
- $p > q$

- (i) $x > y$
- (ii) $x < y$
- (iii) $x \geq y$
- (iv) $x \leq y$
- ~~(v)~~ $x = y$ or relation can't be established,



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