



# IBPS/ BANK 2023



**MATHS**

# INEQUALITY

**(BASIC TO HIGH)**

**BEGINNERS इस VIDEO को जरूर देखे**

**LIVE | 11:30 AM**

**BY SUNIL MAHENDRAS**





# UPCOMING ONLINE BATCHES

## MARCH 2023

01 MARCH 2023

10:30 AM to 12:30 PM

**SSC ONLINE LIVE CLASS**

**BILINGUAL**

15 MARCH 2023

08:00 AM to 10:00 AM

**BANK ONLINE LIVE CLASS**

**BILINGUAL**

22 MARCH 2023

02:00 PM to 04:00 PM

**BANK ONLINE LIVE CLASS**

**English & Bengali**



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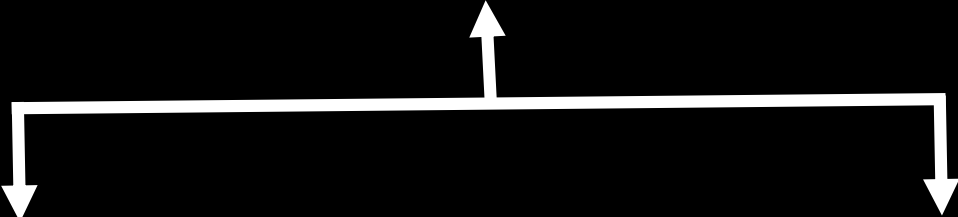


# Quadratic Equation





# Type of Equations



Quadratic Equation  
(  $ax^2 + bx + c = 0$  )

Unitary Equation  
(  $ax + by + c = 0$  )

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

# Signification of Inequality



**Two variables :-** Two variables can be x and y or a and b etc. .

$$a_1x^2 + b_1x + c_1 = 0$$

$$x =$$

$$a_2y^2 + b_2y + c_2 = 0$$

$$y =$$

1.  $X > Y$

2.  $X < Y$

3.  $X \geq Y$

4.  $X \leq Y$

5.  $X = Y$

or CND



$$an^2 + bn + c = 0$$

$$\begin{cases} ac = 7 \\ ac = -6 \\ b = 1 \end{cases}$$

①

$$6x^2 + x - 1 = 0$$

$$6x^2 + 3x - 2x - 1 = 0$$

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

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

$$x = -\frac{1}{2}$$

$$x = \frac{1}{3}$$

$$= -\frac{1}{2},$$

$$\begin{matrix} x > y \\ x < y \\ x = y \end{matrix}$$

$$x > y$$

$$\begin{matrix} b = 10 \\ ac = 24 \end{matrix}$$

②

$$8y^2 + 10y + 3 = 0$$

$$8y^2 + 6y + 4y + 3 = 0$$

$$2y(4y+3) + 1(4y+3) = 0$$

$$(4y+3)(2y+1) = 0$$

$$y = -\frac{3}{4}$$

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

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

$$-\frac{1}{2}$$



EQUATION SIGN	ROOT SIGN
+ , +	- , -
- , +	+ , +
- , -	+ , -
+ , -	- , +





$$\textcircled{I} \quad 6x^2 + x - 1 = 0$$

$$-\frac{3}{6} \quad +\frac{2}{6}$$

$-\frac{1}{2}$	$-\frac{1}{3}$
----------------	----------------

$$\frac{1}{2}, \frac{1}{3}$$

$$\textcircled{II} \quad 8y^2 + 10y + 3 = 0$$

$$-\frac{6}{8} \quad -\frac{4}{8}$$

$-\frac{3}{4}$	$-\frac{1}{2}$
----------------	----------------

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

— —

$$y^2 - 5y + 6 = 0$$

+ +

$x < y$



EQN SIGN	ROOT SIGN
+, +	-, -
-, +	+, +
-, -	+, -
+, -	-, +

1.  $X > Y$

2.  $X < Y$

3.  $X \geq Y$

4.  $X \leq Y$

5.  $X = Y$

or CND





$$x^2 - 6x - 16 = 0$$

$+8$     $-2$

$$y^2 + 6y - 16 = 0$$

$-8$     $+2$

$x > y$   
 $x < y$



EQN SIGN	ROOT SIGN
$+, +$	$-, -$
$-, +$	$+, +$
$-, -$	$+, -$
$+, -$	$-, +$

1.  $X > Y$
2.  $X < Y$
3.  $X \geq Y$
4.  $X \leq Y$
5.  $X = Y$   
or CND



$$x^2 + 21x - 46 = 0$$

$$-23 + 2$$

$$y^2 + 24y - 81 = 0$$

$$-27 + 3$$



EQN SIGN	ROOT SIGN
+, +	-, -
-, +	+, +
-, -	+, -
+, -	-, +

1.  $X > Y$
2.  $X < Y$
3.  $X \geq Y$
4.  $X \leq Y$
5.  $X = Y$   
or CND



$$x^2 - 12x + 32 = 0$$

$$+8 + 4$$

$$y^2 - 7y + 12 = 0$$

$$+4 + 3$$

$$\begin{aligned} x &> y \\ x &= y \end{aligned}$$

$$x > y$$



EQN SIGN	ROOT SIGN
+, +	-, -
-, +	+, +
-, -	+, -
+, -	-, +

1.  $X > Y$
2.  $X < Y$
3.  $X \geq Y$
4.  $X \leq Y$
5.  $X = Y$

or CND



$$x^2 + 14x + 48 = 0$$

$-8$   $-6$

$16, 3x$   
 $8, 6$

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

$-6$   $-5$

$x < y$   
 $x = y$

$x \geq y$



EQN SIGN	ROOT SIGN
$+, +$	$-, -$
$-, +$	$+, +$
$-, -$	$+, -$
$+, -$	$-, +$

1.  $X > Y$
  2.  $X < Y$
  3.  $X \geq Y$
  4.  $X \leq Y$
  5.  $X = Y$
- or CND

$$4x^2 + 12x + 5 = 0$$

$$\frac{-10}{4} \quad \frac{-2}{4}$$

$$-2.5 \quad -0.5$$

$$ac = 20$$

$$b = 12$$

$$6y^2 + 27y + 12 = 0$$

$$\frac{-27}{6} \quad \frac{-3}{6}$$

$$-4.5 \quad -0.5$$

$$x > y$$

$$x < y$$



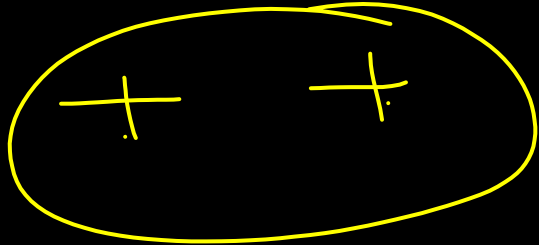
EQN SIGN	ROOT SIGN
+, +	-, -
-, +	+, +
-, -	+, -
+, -	-, +

1.  $X > Y$
2.  $X < Y$
3.  $X \geq Y$
4.  $X \leq Y$
5.  $X = Y$   
or CND

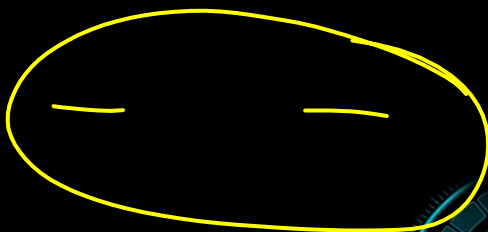




$$3x^2 - 16x + 21 = 0$$



$$6y^2 + 25y + 21 = 0$$



$x > y$



EQN SIGN	ROOT SIGN
+ , +	- , -
- , +	+ , +
- , -	+ , -
+ , -	- , +

1.  $X > Y$

2.  $X < Y$

3.  $X \geq Y$

4.  $X \leq Y$

5.  $X = Y$

or CND

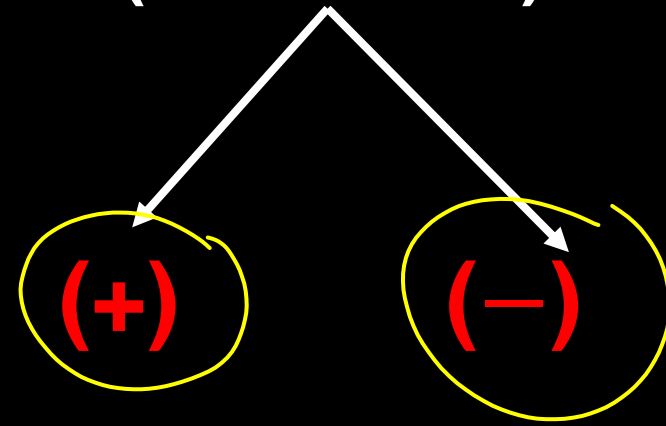




**Rule : (i)**

$x$  even no. (2,4,6.....)

**(Two Roots)**



$$2^2 = 16$$

$$2 = \pm 4$$

$$2^5 = 625$$

$$2 = +5, -5$$

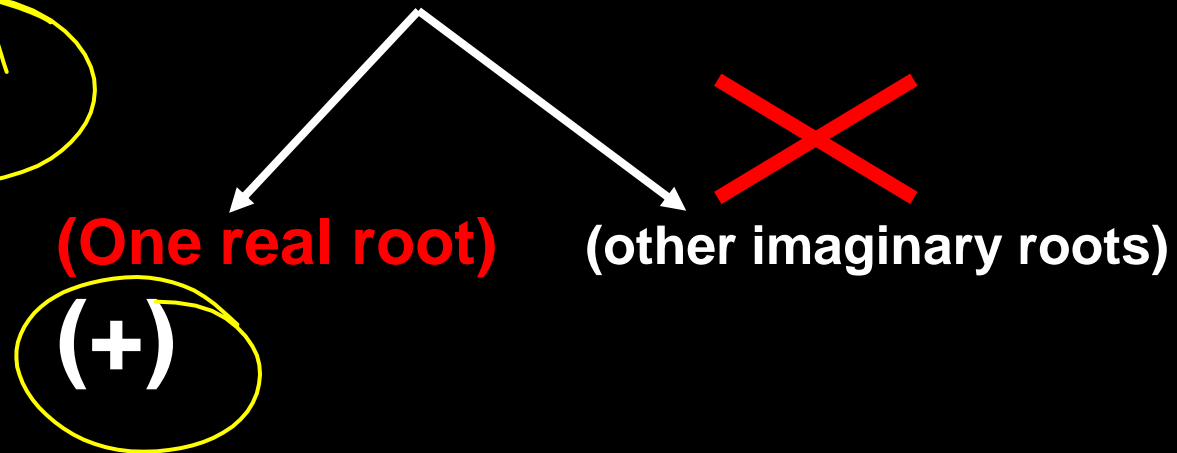
~~$+5i, -5i$   
 $+x, -x$~~



Rule (ii) :-

$x^3 = 1331$   
 $x = 11$

$x^{\text{odd no.}(1,3,5,\dots)}$   
(One Root)





$$x^2 = 25$$

$$x = \pm 5$$

$$y^3 = 216$$

$$y = 6$$

$$x < y$$



EQN SIGN	ROOT SIGN
+, +	-, -
-, +	+, +
-, -	+, -
+, -	-, +

1.  $X > Y$

2.  $X < Y$

3.  $X \geq Y$

4.  $X \leq Y$

5.  $X = Y$

or CND





$$x^4 = 625$$

$$x = \pm 5$$

$$y = \sqrt{9}$$

$$y = 3$$

CND

EQN SIGN	ROOT SIGN
+, +	-, -
-, +	+, +
-, -	+, -
+, -	-, +

1.  $X > Y$

2.  $X < Y$

3.  $X \geq Y$

4.  $X \leq Y$

5.  $X = Y$

or CND

$$x = \sqrt{225}$$

$$y = \sqrt{-64}$$

$$y = 8i$$



EQN SIGN	ROOT SIGN
+, +	-, -
-, +	+, +
-, -	+, -
+, -	-, +

1.  $X > Y$
2.  $X < Y$
3.  $X \geq Y$
4.  $X \leq Y$
5.  $X = Y$   
or CND



$$50x^2 - 60x + 16 = 0$$

$$20y^2 - 32y + 12 = 0$$

EQN SIGN	ROOT SIGN
+, +	-, -
-, +	+, +
-, -	+, -
+, -	-, +



1.  $X > Y$
  2.  $X < Y$
  3.  $X \geq Y$
  4.  $X \leq Y$
  5.  $X = Y$
- or CND



