

## Numerical Ability for SBI Clerk Prelims Exam 2018

**Directions (Q1-5):** In these questions, two equations numbered I and II are given. You have to solve both the equations and give answer:

- (a) if  $x < y$
- (b) if  $x > y$
- (c) if  $x \leq y$
- (d) if  $x \geq y$
- (e) if  $x = y$  or relationship between  $x$  and  $y$  cannot be determined

**Q1. I.  $x^2 - 9x + 18 = 0$**

**II.  $5y^2 - 22y + 24 = 0$**

S1. Ans.(b)

Sol.

I.  $x^2 - 9x + 18 = 0$

$x^2 - 6x - 3x + 18 = 0$

$x(x - 6) - 3(x - 6) = 0$

$(x - 3)(x - 6) = 0$

$x = 3, 6$

II.  $5y^2 - 22y + 24 = 0$

$5y^2 - 10y - 12y + 24 = 0$

$5y(y - 2) - 12(y - 2) = 0$

$(y - 2)(5y - 12) = 0$

$y = 2, 12/5$

$\therefore x > y$

**Q2. I.  $6x^2 + 11x + 5 = 0$**

**II.  $2y^2 + 5y + 3 = 0$**

S2. Ans.(d)

Sol.

I.  $6x^2 + 11x + 5 = 0$

$6x^2 + 6x + 5x + 5 = 0$

$6x(x + 1) + 5(x + 1) = 0$

$(x + 1)(6x + 5) = 0$

$x = -1, -5/6$

II.  $2y^2 + 5y + 3 = 0$

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

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

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

$y = -1, -3/2$

$\therefore x \geq y$

**Q3. I.  $x^2 + 10x + 24 = 0$**

**II.  $y^2 - \sqrt{625} = 0$**

S3. Ans.(e)

Sol.

I.  $x^2 + 10x + 24 = 0$

$x^2 + 6x + 4x + 24 = 0$

$x(x + 6) + 4(x + 6) = 0$

$(x + 4)(x + 6) = 0$

$x = -4, -6$

II.  $y^2 - \sqrt{625} = 0$

$y^2 = \sqrt{625}$

$y^2 = 25; y = \pm 5$

$\therefore$  Relationship between x and y cannot be determined

**Q4. I.  $10x^2 + 11x + 1 = 0$**

**II.  $15y^2 + 8y + 1 = 0$**

S4. Ans.(e)

Sol.

I.  $10x^2 + 11x + 1 = 0$

$$10x^2 + 10x + x + 1 = 0$$

$$10x(x + 1) + 1(x + 1) = 0$$

$$(x + 1)(10x + 1) = 0$$

$$x = -1, -1/10$$

II.  $15y^2 + 8y + 1 = 0$

$$15y^2 + 5y + 3y + 1 = 0$$

$$5y(3y + 1) + 1(3y + 1) = 0$$

$$(3y + 1)(5y + 1) = 0$$

$$y = -1/3, -1/5$$

$\therefore$  Relationship between x and y cannot be determined

**Q5. I.  $15x^2 - 11x + 2 = 0$**

**II.  $10y^2 - 9y + 2 = 0$**

S5. Ans.(c)

Sol.

I.  $15x^2 - 11x + 2 = 0$

$$15x^2 - 5x - 6x + 2 = 0$$

$$5x(3x - 1) - 2(3x - 1) = 0$$

$$(3x - 1)(5x - 2) = 0$$

$$x = 1/3, 2/5$$

II.  $10y^2 - 9y + 2 = 0$

$$10y^2 - 5y - 4y + 2 = 0$$

$$5y(2y - 1) - 2(2y - 1) = 0$$

$$(2y - 1)(5y - 2) = 0$$

$$y = 1/2, 2/5$$

$\therefore x \leq y$

**Directions (Q.6-10):** In the following questions two equations numbered I and II are given. You have to solve both the equations and give answer

**(a) if  $x < y$**

- (b) if  $x > y$
- (c) if  $x \leq y$
- (d) if  $x \geq y$
- (e) if  $x = y$  or relationship between  $x$  and  $y$  cannot be determined

Q6. I.  $\sqrt{x-\sqrt{6}}/\sqrt{x}=0$

II.  $y^3-6^{(3/2)}=0$

Q7. I.  $3x-2y=10$

II.  $5x-6y=6$

Q8. I.  $x^2+x-12=0$

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

Q9. I.  $x^2+9x+18=0$

II.  $y^2-13y+40=0$

Q10. I.  $\sqrt{(x+6)}=\sqrt{121}-\sqrt{36}$

II.  $y^2+112=473$

PINNACLE

S6. Ans.(e)

Sol.

I.  $\sqrt{x} \times \sqrt{x} = \sqrt{6} \Rightarrow x = \sqrt{6}$

II.  $y^3 = 6^{\frac{3}{2}} \Rightarrow y = \left(6^{\frac{3}{2}}\right)^{\frac{1}{3}} = 6^{\frac{1}{2}} = \sqrt{6}$

$x = y$

S7. Ans.(b)

Sol.

On (i)x3 - (ii)

$$9x - 6y = 30$$

$$\underline{-5x + 6y = -6}$$

$$4x = 24 \Rightarrow x = 6$$

$$y = 4; \quad x > y$$

S8. Ans.(e)

Sol.

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

$$x^2 + 4x - 3x - 12 = 0$$

$$x(x + 4) - 3(x + 4) = 0$$

$$(x + 4)(x - 3) = 0$$

$$x = -4, 3$$

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

$$y^2 - 3y - 2y + 6 = 0$$

$$y(y - 3) - 2(y - 3) = 0$$

$$(y - 3)(y - 2) = 0$$

$$y = 3, 2$$

*no relation*

PIL

S9. Ans.(a)

Sol.

I.  $x^2 + 6x + 3x + 18 = 0$

$$x(x + 6) + 3(x + 6) = 0$$

$$(x + 6)(x + 3) = 0$$

$$x = -6, -3$$

II.  $y^2 - 8y - 5y + 40 = 0$

$$y(y - 8) - 5(y - 8) = 0$$

$$(y - 8)(y - 5) = 0$$

$$y = 8, 5$$

$$x < y$$

S10. Ans.(d)

Sol.

I.  $\sqrt{x + 6} = 11 - 6$

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

$$x + 6 = 25$$

$$x = 19$$

II.  $y^2 + 112 = 473$

$$y^2 = 473 - 112 = 361$$

$$y = \pm 19$$

$$x \geq y$$

**Directions (Q11-15) :** In each of the these questions, two equation (I) and (II) are given. You have to solve both the equations and give answer

(a) if  $x < y$

(b) if  $x > y$

(c) if  $x \leq y$

(d) if  $x \geq y$

(e) if  $x = y$  or no relationship can be established between  $x$  and  $y$ .



Q11. I.  $x^2 - 24x + 144 = 0$   
II.  $y^2 - 26y + 169 = 0$

Q12. I.  $2x^2 + 3x - 20 = 0$   
II.  $2y^2 + 19y + 44 = 0$

Q13. I.  $6x^2 + 77x + 121 = 0$   
II.  $y^2 + 9y - 22 = 0$

Q14. I.  $x^2 - 6x = 7$   
II.  $2y^2 + 13y + 15 = 0$

Q15. I.  $10x^2 - 7x + 1 = 0$   
II.  $35y^2 - 12y + 1 = 0$

S11. Ans.(a)

Sol. I.  $x^2 - 24x + 144 = 0$   
or,  $x^2 - 12x - 12x + 144 = 0$   
or,  $x(x - 12) - 12(x - 12) = 0$   
or,  $(x - 12)^2 = 0$   
 $\therefore x = 12$   
II.  $y^2 - 26y + 169 = 0$   
or,  $y^2 - 13y - 13y + 169 = 0$   
or,  $y(y - 13) - 13(y - 13) = 0$   
or,  $(y - 13)^2 = 0$   
 $\therefore y = 13$   
Hence,  $x < y$

S12. Ans.(d)

Sol.  $2y^2 + 3x - 20 = 0$   
Or,  $2x^2 + 8x - 5x - 20 = 0$   
or,  $2x(x + 4) - 5(x + 4) = 0$   
or,  $(2x - 5)(x + 4) = 0$   
or,  $x = \frac{5}{2}, -4$   
II.  $2y^2 + 19y + 44 = 0$   
Or,  $2y^2 + 11y + 8y + 44 = 0$   
or,  $y(2y + 11) + 4(2y + 11) = 0$   
or,  $(y + 4)(2y + 11) = 0$   
 $y = -4, -\frac{11}{2}$  Hence,  $x \geq y$

S13. Ans.(e)

Sol. I.  $6x^2 + 77x + 121 = 0$

or,  $6x^2 + 66x + 11x + 121 = 0$

or,  $6x(x + 11) + 11(x + 11) = 0$

or,  $(6x + 11)(x + 11) = 0$

or,  $x = -\frac{11}{6}, -11$

II.  $y^2 + 9y - 22 = 0$

or,  $y^2 + 11y - 2y - 22 = 0$

or,  $y(y + 11) - 2(y + 11)$

or,  $(y - 2)(y + 11) = 0$

or,  $y = 2, -11$

Hence, no relationship can be established between x and y.

S14. Ans.(b)

Sol. I.  $x^2 - 6x = 7$

or,  $x^2 - 6x - 7 = 0$

or,  $x^2 - 7x + x - 7 = 0$

or,  $x(x - 7) + 1(x - 7) = 0$

or,  $(x + 1)(x - 7) = 0$

or,  $x = -1, 7$

II.  $2y^2 + 13y + 15 = 0$

or,  $2y^2 + 10y + 3y + 15 = 0$

or,  $2y(y + 5) + 3(y + 5) = 0$

or,  $(2y + 3)(y + 5) = 0$

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

Hence,  $x > y$

S15. Ans.(d)

Sol. I.  $10x^2 - 7x + 1 = 0$

or,  $10x^2 - 5x - 2x + 1 = 0$

or,  $5x(2x - 1) - 1(2x - 1) = 0$

or,  $(5x - 1)(2x - 1) = 0$

or,  $x = \frac{1}{5}, \frac{1}{2}$

II.  $35y^2 - 12y + 1 = 0$

or,  $35y^2 - 7y - 5y + 1 = 0$

or,  $7y(5y - 1) - 1(5y - 1) = 0$

or,  $(7y - 1)(5y - 1) = 0$

or,  $y = \frac{1}{7}, \frac{1}{5}$

Hence,  $x \geq y$