IBT
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Most Important

Quadratic Equation Questions

PDF for

IBPS CLERK EXAM-2019

DIRECTION (Q. 1-5):- Solve the following equations and mark the correct option.

1. I. $3.5x^2 - 11.5x + 9 = 0$
II. $8y^2 - 18y + 10 = 0$

(A) x > y (B) x ≥ y
(C) y > x (D) y ≥ x
(E) x = y or no relation can be established

2. I. $30x^2 - 33x - 18 = 0$
II. $2y^2 + 10y + 12 = 0$

(A) x > y (B) x ≥ y
(C) y > x (D) y ≥ x
(E) x = y or no relation can be established

3. I. $\frac{13}{2} - \frac{29}{2}x + 8 = 0$
II. $12y^2 - 22y + 10 = 0$

(A) x>y (B) x≥y
(C) y>x (D) y≥x
(E) x = y or no relation can be established

4. I. $x = -13 + 26$
II. $16(y-1)^2 = 2304$

(A) x > y (B) x ≥ y
(C) y > x (D) y ≥ x
(E) x = y or no relation can be established

5. I. $14x + 22y = 58$
II. $\frac{11}{2}x + \frac{7}{2}y = 12.5$

(A) x > y (B) x ≥ y
(C) y > x (D) y ≥ x
(E) x = y or no relation can be established

DIRECTIONS (Q. 6-9):- In the given question, two equations numbered l and II are given. You have to solve both the equations and mark the appropriate answer:-

6. I) x - $\sqrt{144}$ = 0
II) y^2 – 196 = 0

(A) x> y` (B) x ≥ y
(C) x< y (D) x ≤ y
(E) x = y or the relationship cannot be established

7. I) x^2 - 42 = 214
II) y - $\sqrt{196}$ = 0

(A) x> y (B) x ≥ y
(C) x< y (D) x ≤ y
(E) x = y or the relationship cannot be established

8. I) x^2 - 15x + 56 = 0
II) y^2 - 4y – 5 = 0

(A) x> y (B) x ≥ y
(C) x< y (D) x ≤ y
(E) x = y or the relationship cannot be established

9. I) x^2 + 6x + 9 = 0
II) y^2 + 4y + 4 = 0

(A) x> y (B) x ≥ y
(C) x< y (D) x ≤ y
(E) x = y or the relationship cannot be established

10. In the given question, two equations numbered l and II are given. You have to solve both the equations and mark the appropriate answer
I) x - 3 = 0
II) y^2 - 10y + 24 = 0

(A) x> y (B) x ≥ y
(C) x< y (D) x ≤ y
(E) x = y or the relationship cannot be established

DIRECTION (Q.11-15):- In each of these questions, two equations (I) and (II) are given. You have to solve both the equations and give answer.

11. I. $x^2 - 35x + 306 = 0$
II.$y^2 - 33y + 272 = 0$

(A)x>y (B) x≥y
(C) x<y (D) x ≤y
(E) x = y or no relation can be established between x and y

12. I. $2x^2 + 7x - 30 = 0$
II.$3y^2 + 6y - 24 = 0$

(A) x>y (B) x≥y
(C) x<y (D) x ≤y
(E) x = y or no relation can be established between x and y

13. I. $\frac{x}{(16)^{0.25}} = \sqrt{64}$
II.$y^2 = 256$

(A) x>y (B) x≥y
(C) x<y (D) x ≤y
(E) x = y or no relation can be established between x and y

14. I. $3x^2 - 25x + 48 = 0$
II.$4y^2 - 24y + 32 = 0$

(A) x>y (B) x≥y
(C) x<y (D) x ≤y
(E) x = y or no relation can be established between x and y

15. I. $2x^2 - 19x + 42 = 0$
II. $5y^2 - 41y + 80 = 0$

(A) x>y (B) x≥y
(C) x<y (D) x ≤y
(E) x = y or no relation can be established between x and y

DIRECTION (Q. 16-20):- In the following question two equations are given in variables x and y. You have to solve these equations and determine relation between x and y.

16. I. $12x^2 + 58x + 70 = 0$
II. $14y^2 - 46y - 60 = 0$
(A) x > y (B) x < y
(C) x ≥ y (D) x ≤ y
(E) x = y or relation cannot be established

17. I. $18x^2 + 87x + 105 = 0$
II. $81y^2 - 72y + 15 = 0$

(A) x > y (B) x < y
(C) x ≥ y (D) x ≤ y
(E) x = y or relation cannot be established

18. I. $7.5x^2 + 40.5x + 15 = 0$
II. $4y^2 + 22y + 24 = 0$

(A) x > y (B) x < y
(C) x ≤ y (D) x ≥ y
(E) x = y or no relationship could be established

19. I. $2x^3 - 1070 = 1592$

II. $y^3 - 358 = 642$

(A) x > y (B) x < y
(C) x ≤ y (D) x ≥ y
(E) x = y or no relationship could be established

20. I. $3x^2 - 36x + 96 = 0$
II. $4y^2 - 28y + 48 = 0$

(A) x > y (B) x < y
(C) x ≤ y (D) x ≥ y
(E) x = y or no relationship could be established

21. In the following question two equations are given. You have to solve these equations and determine the relation between roots.
I. $3a^2 + 15a + 27 = 0$
II. $3b^2 + 12b + 12 = 0$

(A) II has complex roots
(B) I has equal roots
(C) I and II has equal roots
(D) I has complex roots and II has equal roots
(E) I has complex roots and II has unequal roots

22. In the following question two equations are given. You have to solve these equations and determine the relation between a and b.
I. $2a^2 - 142a + 2460 = 0$
II. $3b^2 - 114b + 783 = 0$

(A) a + b = 50 (B) a + b = 70
(C) a + b = 39 (D) a + b = 59
(E) All of the above

DIRECTION (Q. 23-31):- Given below are two quantities, quantity I and quantity II. Based on the given information, you have to determine the relation between the two quantities. You should use the given data to choose between the possible answers.

23. Quantity I : $2x^2 - 12x + 16 = 0$
Quantity II : $3y^2 + 6y - 24 = 0$
(A) Quantity I > Quantity II (B) Quantity I < Quantity II
(C) Quantity I ≥ Quantity II (D) Quantity I ≤ Quantity II
(E) Quantity I = Quantity II or No relation

24. Quantity I : $5x^2 - 25x + 20 = 0$
Quantity II : $10y^2 + 30y + 20 = 0$
(A) Quantity I > Quantity II (B) Quantity I < Quantity II
(C) Quantity I ≥ Quantity II (D) Quantity I ≤ Quantity II
(E) Quantity I = Quantity II or No relation

25. Quantity I : x where $x^3 - 12x^2 + 7x = 0$
Quantity II : y where $y^3 - 13y^2 + 42y = 0$
(A) Quantity I > Quantity II
(B) Quantity I < Quantity II
(C) Quantity I ≥ Quantity II
(D) Quantity I ≤ Quantity II
(E) Quantity I = Quantity II OR relationship cannot be determined.

26. Quantity I : $x^2+25x+136 = 0$
Quantity II : $x^2-7x-120 = 0$
(A) Quantity I > Quantity II
(B) Quantity I < Quantity II
(C) Quantity I ≥ Quantity II
(D) Quantity I ≤ Quantity II
(E) Quantity I = Quantity II OR relationship cannot be determined.

27. Quantity I: $4x^4 = \frac{128}{x}$
Quantity II: $\sqrt{x}+\frac{15x}{\sqrt{x}} = 4x^{\frac{5}{2}}$
(A) Quantity I > Quantity II
(B) Quantity I < Quantity II
(C) Quantity I ≥ Quantity II
(D) Quantity I ≤ Quantity II
(E) Quantity I = Quantity II OR relationship cannot be determined.

28. Quantity 1: $x^2 - 3481=0$
Quantity 2: $x^2 -118x +3481=0$

(A) Quantity 1 > Quantity 2
(B) Quantity 1 < Quantity 2
(C) Quantity 1 ≥ Quantity 2
(D) Quantity 1 ≤ Quantity 2
(E) Quantity 1 = Quantity 2 or no relation

29. Quantity 1: $y^2 -93y+2160=0$
Quantity 2: $y^2 -7y-1710=0$
(A) Quantity 1 > Quantity 2
(B) Quantity 1 < Quantity 2
(C) Quantity 1 ≥ Quantity 2
(D) Quantity 1 ≤ Quantity 2
(E) Quantity 1 = Quantity 2 or no relation

30. Quantity 1: $4x^2 -4x-48=0$
Quantity 2: $3x^2 -24x+48=0$

(A) Quantity 1> Quantity 2
(B) Quantity 1< Quantity 2
(C) Quantity 1≥ Quantity 2
(D) Quantity 1≤ Quantity 2
(E) Quantity 1= Quantity 2 or no relation

31. Quantity I = $22x^3 y^3$
Quantity II = $13x^4 y^4$
If $x > 0$ & $y < 0$
(a) Quantity I >Quantity II
(b) Quantity I < Quantity II
(c) Quantity I ≤ Quantity II
(d)Quantity I=quantity II or No relation
(e) Quantity I ≥ Quantity II

DIRECTION (Q. 32-36):- In the following question two equations are given in variables x and y. You have to solve these equations and determine relation between x and y.

32. $x^2-12x-364 = 0$
$y^2+31y+240 = 0$

(A) x>y (B) x<y
(C) x≥y (D) x≤y
(E) x= y or no relation

33. $5\sqrt{x} - \frac{28}{\sqrt{x}} = \sqrt{x}$
$3\sqrt{y} + \frac{y-35}{\sqrt{y}} = -\sqrt{y}$
(A) x>y (B) x<y
(C) x≥y (D) x≤y
(E) x= y or no relation

34. $x^2-\sqrt{3}x-60 = 0$
$y^2-2\sqrt{2}y-30 = 0$

(A) x>y
(B) x<y
(C) x≥y
(D) x≤y
(E) x=y or no relation

35. $x^2-8\sqrt{3}x+48 = 0$
$y^2-9\sqrt{2}y +40 = 0$

(A) x>y (B) x<y
(C) x≥y (D) x≤y
(E) x=y or no relation

36. $5x^2+19x+18 = 0$
$4y^2+20y+24 = 0$

(A) x>y (B) x<y
(C) x≥y (D) x≤y
(E) x=y or no relation

Directions (Q. 37-46): In the given questions, two equations numbered I and II are given. Solve both the equations and mark the appropriate answer.

(A) if x > y (B) if x ≥ y
(C) if x < y (D) if x ≤ y
(E) if x = y or relationship between x and y cannot be determined.

37. I. $x^2 + x - 12 = 0$
II. $y^2 + 13y + 42 = 0$

38. I. $4x^2 + 32x + 63 = 0$
II. $y^2 + 5y + 6 = 0$

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

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

41. I. $x^2-11x+24=0$
II. $2y^2-9y+9=0$

42. I. $x^2+3x-40 = 0$
II. $y^2-14y + 48 = 0$

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

44. I. $8x-5y = 36$
II. $2x+3y = 26$

45. I. $x^2= 49$
II. $y^2-16y + 63 = 0$

46. I. $2x^2+13x+21 = 0$
II. $2y^2+27y + 88 = 0$

DIRECTION (47-100):- Two equations I and II are given in each question. On the basis of these equations decide the relation between x and y.

47. I. $3x^2 - 13x + 12 = 0$
II. $2y^2 - 15y + 28 = 0$

(A) x > y (B) x < y
(C) x ≥ y (D) x ≤ y
(E) Relation cannot be established

48. I. $2x^2 - 11x + 15 = 0$
II. $2y^2 - 11y + 14 = 0$

(A) x > y (B) x < y
(C) x ≥ y (D) x ≤ y
(E) Relation cannot be established

49. I. $3x^2 - 14x + 15 = 0$
II. $15y^2 - 34y + 15 = 0$

(A) x > y (B) x < y
(C) x ≥ y (D) x ≤ y
(E) Relation cannot be established

50. I. $3x^2 - 19x + 28 = 0$
II. $5y^2 - 18y + 16 = 0$

(A) x > y (B) x < y
(C) x ≥ y (D) x ≤ y
(E) Relation cannot be established

51. I. $x^2 + 13x = -42$
II. $y^2 + 16y + 63 = 0$

(A) x > y (B) x < y
(C) x ≥ y (D) x ≤ y
(E) Relation cannot be established

52. I. $\frac{9}{\sqrt{x}} + \frac{19}{\sqrt{x}} = \sqrt{x}$
II. $\sqrt{2}y^2 + 7\sqrt{2}y + 12\sqrt{2} = 0$

(A) x > y (B) x < y
(C) x ≥ y (D) x ≤ y
(E) x = y or relation cannot be established

53. I. $2401p^2 = p^{-2}$
II. $7(p + q) = 2$

(A) p > q (B) p < q
(C) p ≥ q (D) p ≤ q
(E) p = q or relation cannot be established

54. I. $x = \sqrt{6.76}$
II. $y = \sqrt{13.69}$
(A) x > y (B) x < y
(C) x ≥ y (D) x ≤ y
(E) x = y or relation cannot be established

55. I. $4x^4 = \frac{128}{x}$
II. $\sqrt{y} + \frac{15y}{\sqrt{y}} = 4y^{\frac{5}{2}}$

(A) x > y (B) x < y
(C) x ≥ y (D) x ≤ y
(E) x = y or relation cannot be established

56. I. $x^3 - 468 = 1729$
II. $y^2 - 1733 + 1564 = 0$

(A) x > y (B) x < y
(C) x ≥ y (D) x ≤ y
(E) x = y or relation cannot be established

57. I. $x^2 + 7x - 294 = 0$
II. $2y^2 + 43y + 241 = 0$

(A) x < y
(B) x > y
(C) x = y or the relationship cannot be determined
(D) x ≥ y
(E) x ≤ y

58. I. $49x^2 - 84x + 36 = 0$
II. $25y^2 - 30y + 9 = 0$

(A) x < y (B) x > y
(C) x = y or the relationship cannot be determined
(D) x ≥ y (E) x ≤ y

59. I. $9x^2 - 9x + 2 = 0$
II. $18y^2 + 3y = 1$

(A) x < y (B) x > y
(C) x = y or the relationship cannot be determined
(D) x ≥ y (E) x ≤ y

60. I. $10x^2 - 14.3x - 24.3 = 0$
II. $4.5y^2 - 13.5y - 486 = 0$

(A) x < y (B) x > y
(C) x ≥ y (D) x ≤ y
(E) x = y or the relationship cannot be determined

61. I. $\frac{5}{x} + \frac{11}{x} = x$
II. $\frac{23}{y} + \frac{2}{y} = y$

(A) x < y (B) x > y
(C) x = y or the relationship cannot be determined
(D) x ≥ y
(E) x ≤ y

62. I. $5x^2 - 87x + 378 = 0$
II. $3y^2 - 49y + 200 = 0$

(A) If x > y (B) If x < y
(C) If x ≥ y (D) If x ≤ y

(E) If x = y, or no relation can be established between x and y.

63. I. $10x^2 - x - 24 = 0$
II. $y^2 - 2y = 0$

(A) If x > y (B) If x < y
(C) If x ≥ y (D) If x ≤ y
(E) If x = y, or no relation can be established between x and y.

64. I. $x^2 - 5x + 6 = 0$
II. $2y^2 - 15y + 27 = 0$

(A) If x > y (B) If x < y
(C) If x ≥ y (D) If x ≤ y
(E) If x = y, or no relation can be established between x and y.

65. I. $3x + 2y = 301$
II. $7x - 5y = 74$

(A) If x > y (B) If x < y
(C) If x ≥ y (D) If x ≤ y
(E) If x = y, or no relation can be established between x and y.

66. I. $14x^2 - 37x + 24 = 0$
II. $28y^2 - 53y + 24 = 0$
(A) If x > y (B) If x < y
(C) If x ≥ y (D) If x ≤ y
(E) If x = y, or no relation can be established between x and y.

67. I. $x^2 + 3x - 40 = 0$
II. $y^2 - 14y + 48 = 0$
(A) if x > y (B) if x ≥ y
(C) if x < y (D) if x ≤ y
(E) if x= y or relation cannot be established between 'x' and 'y'.

68. I. $x^2 + x - 2 = 0$
II. $y^2 + 5y + 6 = 0$
(A) if x > y (B) if x ≥ y
(C) if x < y (D) if x ≤ y
(E) if x= y or relation cannot be established between 'x' and 'y'.

69. I. $2x^2 + 13x + 21 = 0$
II. $2y^2 + 27y + 88 = 0$
(A) if x > y
(B) if x ≥ y
(C) if x < y
(D) if x ≤ y
(E) if x= y or relation cannot be established between 'x' and 'y'.

70. I. $x^2 + 11x + 30 = 0$
II. $y^2 + 12y + 36 = 0$
(A) if x > y (B) if x ≥ y
(C) if x < y (D) if x ≤ y
(E) if x= y or relation cannot be established between 'x' and 'y'.

71. I. $2x^2 + x - 1 = 0$
II. $2y^2 - 3y + 1 = 0$
(A) if x > y (B) if x ≥ y
(C) if x < y (D) if x ≤ y
(E) if x= y or relation cannot be established between 'x' and 'y'.

72. I. $14x - 25 = 59 - 7x$
II. $\sqrt{y + 222} - \sqrt{36} = \sqrt{81}$

(A) if x < y (B) if x ≤ y
(C) if x = y or no relation can be established.
(D) if x > y (E) if x ≥ y

73. I. $5x^2 - 29x + 36 = 0$
II. $10y^2 - 3y - 27 = 0$

(A) if x < y (B) if x ≤ y
(C) if x = y or no relation can be established.
(D) if x > y (E) if x ≥ y

74. I. $\sqrt{x} - \frac{\sqrt{6}}{\sqrt{x}} = 0$
II. $y^3 - 6^{\frac{3}{2}} = 0$

(A) if x < y (B) if x ≤ y
(C) if x = y or no relation can be established.
(D) if x > y (E) if x ≥ y

75. I. $3x^2 + 5x - 8 = 0$
II. $y^2 - 4y + 3 = 0$

(A) if x < y (B) if x ≤ y
(C) if x = y or no relation can be established.
(D) if x > y (E) if x ≥ y

76. I. $x^2 + y^2 = 3341$
II. $x^2 - y^2 = 891$

(A) if x < y (B) if x ≤ y
(C) if x = y or no relation can be established.
(D) if x > y (E) if x ≥ y

77. I. $p^2 - 12p + 35 = 0$
II. $2q^2 - 22q + 56 = 0$

(A) if p > q (B) if p ≥ q
(C) if p < q (D) if p ≤ q
(E) if p = q or there is no relation between 'p' and 'q'.

78. I. $2p^2 + 20p + 50 = 0$
II. $q^2 = 25$

(A) if p > q (B) if p ≥ q
(C) if p < q (D) if p ≤ q
(E) if p = q or there is no relation between 'p' and 'q'.

79. I. $p^2 = 4$
II. $q^2 + 4q = -4$

(A) if p > q (B) if p ≥ q
(C) if p < q (D) if p ≤ q
(E) if p = q or there is no relation between 'p' and 'q'.

80. I. $3p + 2q - 58 = 0$
II. $4q + 4p = 92$
(A) if p > q (B) if p ≥ q
(C) if p < q (D) if p ≤ q
(E) if p = q or there is no relation between 'p' and 'q'.

81. I. $p^2 + 13p + 42 = 0$
II. $q^2 = 36$

(A) if p > q (B) if p ≥ q
(C) if p < q (D) if p ≤ q
(E) if p = q or there is no relation between 'p' and 'q'.

82. I. $225x^2 - 4 = 0$
II. $\sqrt{225}\,y + 2 = 0$

(A) if x < y (B) if x > y
(C) if x ≤ y (D) if x ≥ y
(E) if x = y or no relation can be established.

83. I. $\frac{3}{\sqrt{x}} + \frac{4}{\sqrt{x}} = \sqrt{x}$
II. $y^3 - \frac{(7)^{\frac{7}{2}}}{\sqrt{y}} = 0$
(A) if x < y (B) if x > y
(C) if x ≤ y (D) if x ≥ y
(E) if x = y or no relation can be established.

84. I. $9x - 15.45 = 54.55 + 4x$
II. $\sqrt{y + 155} - \sqrt{36} = \sqrt{49}$
(A) if x < y (B) if x > y
(C) if x ≤ y (D) if x ≥ y
(E) if x = y or no relation can be established.

85. I. $x^2 + 9x + 18 = 0$
II. $y^2 - 13y + 40 = 0$
(A) if x < y (B) if x > y
(C) if x ≤ y (D) if x ≥ y
(E) if x = y or no relation can be established.

86. I. $\sqrt{x+6} = \sqrt{121} - \sqrt{36}$
II. $y^2 + 112 = 473$
(A) if x < y (B) if x > y
(C) if x ≤ y (D) if x ≥ y
(E) if x = y or no relation can be established.

87. I. $(441)^{\frac{1}{2}}x^2 - 111 = (15)^2$
II. $\sqrt{121}\,y^2 + (6)^3 = 260$
(A) if x < y (B) if x > y
(C) if x ≤ y (D) if x ≥ y
(E) if x = y or no relation can be established.

88. I. $17x + (13)^2 - 114 = (15)^2$
II. $\sqrt{121}\,y^2 + (6)^3 = 260$

(A) if x < y (B) if x > y
(C) if x ≤ y (D) if x ≥ y
(E) if x = y or no relation can be established.

89. I. $17x = (13)^2 + \sqrt{196} + (5)^2 + 4x$
II. $9y - 345 = 4y - 260$

(A) if x < y (B) if x > y
(C) if x ≤ y (D) if x ≥ y
(E) if x = y or no relation can be established.

90. I. $6y^2 + \frac{1}{2} = \frac{7}{2}y$
II. $12x^2 + 2 = 10x$

(A) if x < y (B) if x > y
(C) if x ≤ y (D) if x ≥ y
(E) if x = y or no relation can be established.

91. I. $4x^2 = 49$
II. $9y^2 - 66y + 121 = 0$

(A) if x < y (B) if x > y
(C) if x ≤ y (D) if x ≥ y
(E) if x = y or no relation can be established.

92 I. $4x + 7y = 209$
II. $12x - 14y = -38$

(A) if x < y (B) if x > y
(C) if x ≤ y (D) if x ≥ y
(E) if x = y of no relation can be established.

93. I. $6x^2 - 25x + 25 = 0$
II. $15y^2 - 16y + 4 = 0$
(A) if x < y (B) if x > y
(C) if x ≤ y (D) if x ≥ y
(E) if x = y of no relation can be established.

94. I. $6x + 5y = 30xy$
II. $5x + 6y = 35xy$
(A) if x < y (B) if x > y

(C) if x ≤ y (D) if x ≥ y
(E) if x = y of no relation can be established.

95. I. $\frac{9}{\sqrt{x}} + \frac{19}{\sqrt{x}} = \sqrt{x}$

II. $y^5 - \frac{(2\times14)^{\frac{11}{2}}}{\sqrt{y}} = 0$

(A) if x < y (B) if x > y
(C) if x ≤ y (D) if x ≥ y
(E) if x = y of no relation can be established.

96. I. $\sqrt{784}\,x + 1234 = 1486$

II. $\sqrt{1089}\,y + 2081 = 2345$

(A) if x < y (B) if x > y
(C) if x ≤ y (D) if x ≥ y
(E) if x = y of no relation can be established.

97. I. $\sqrt{x+18} = \sqrt{144} - \sqrt{49}$

II. $y^2 + 409 = 473$

(A) if x < y (B) if x > y
(C) if x ≤ y (D) if x ≥ y
(E) if x = y or no relation can be established.

98. I. $y^2 - x^2 = 32$

II. $y - x = 2$

(A) if x < y (B) if x > y
(C) if x ≤ y (D) if x ≥ y
(E) if x = y or no relation can be established.

99. I. $\sqrt{x} - \frac{\sqrt{5}}{\sqrt{x}} = 0$

II. $y^3 - 5^{\left(\frac{3}{2}\right)} = 0$

(A) if x < y (B) if x > y
(C) if x ≤ y (D) if x ≥ y
(E) if x = y or no relation can be established.

100. I. $8x^2 + 78x + 169 = 0$

II. $20y^2 - 117y + 169 = 0$

(A) if x < y (B) if x > y
(C) if x ≤ y (D) if x ≥ y
(E) if x = y or no relation can be established.

Solution :

1.(A)

$3.5x^2 - 11.5x + 9 = 0$

$7x^2 - 23x + 18 = 0$

x = $\frac{9}{7}, 2$

$8y^2 - 18y + 10 = 0$

$4y^2 - 9y + 5 = 0$

y = $\frac{5}{4}, 1$

x > y

2.(A)

x = $-\frac{2}{5}, \frac{3}{2}$

y = – 2, – 3

x > y

3.(B)

x = $\frac{16}{13}, 1$

y = $\frac{5}{6}, 1$

x ≥ y

4.(B)

x = 13

y = – 11 , + 13

x ≥ y

5.(C)

x = 1

y = 2

y > x

6.(E)

I. x = $\sqrt{144}$ = 12

II. y^2 = 196 = 0

y^2 = 196

y = + 14

y = – 14

7.(E)

I. x^2 – 42 = 214

x^2 = 214 + 42 = 256

x = $\sqrt{256}$ = ± 16

II. $y - \sqrt{196}$ = 0

Y = $\sqrt{196}$ = 14

8.(A)

I. x = 7, x = 8

II. y = 5, y – 1

9.(C)

I. x = – 3

II. y = – 2

10.(C)

I. x – 3 = 0

x = 3

II. y^2 – 10y + 24 = 0

y^2 – 4y – 6y + 24 = 0

y (y – 4) – 6 (y – 4) = 0

(y – 6) (y – 4) = 0

y = 6 and y = 4

11.(B)

x = 17, 18

y = 16, 17

12.(E)

x = $\frac{5}{2}, -6$

y = –4, 2

13.(B)

x = $\sqrt{64} \times \left(2^4\right)^{0.25}$

x = $\sqrt{64} \times 2$

x = 16

y = 256

y = ± 16

14.(E)

x= $\frac{16}{3}, 3$

y = 4, 2

15.(E)

x = $\frac{7}{2}, 6$

y = $\frac{16}{5}, 5$

16.(B)

x = – 2.3, – 2.5

y = + 4.2, y = – 1

17.(B)

x = – 2.1, – 2.5

y = 0.3, 0.5

18.(E)

$7.5x^2 + 40.5x + 15 = 0$

$5x^2 + 27x + 10 = 0$

x = – 5, $-\frac{2}{5}$

y = – 4, $-\frac{3}{2}$

19.(A)

$2x^3 - 1070 = 1592$

$x^3 = 1331$

x = 11

$y^3 = 642 + 358$

= 1000

y = 10

20.(D)

x = + 4, + 8

y = + 4, + 3

21.(D)

$3a^2 + 15a + 27 = 0$

$a^2 + 5a + 9 = 0$

discriminant = – 11

Complex roots

$3b^2 + 12b + 12 = 0$

$b^2 + 4b + 4 = 0$

discriminant = 0

Equal roots

22.(E)

(I) $2a^2 - 142a + 2460 = 0$

$a^2 - 71a + 1230 = 0$

(a – 41) (a – 30) = 0

a = 41, 30

(II) $3b^2 - 114b + 783 = 0$

$b^2 - 38b + 261 = 0$

b = + 9, + 29

23.(C)

Quantity I

$2x^2 - 12x + 16 = 0$

$x^2 - 6x + 8 = 0$

$x^2 - 4x - 2x + 8 = 0$

x (x – 4) – 2 (x – 4) = 0

(x – 4) (x – 2) = 0

x = 2, 4

Quantity II

$3y^2 + 6y - 24 = 0$

$y^2 + 2y - 8 = 0$

$y^2 + 4y - 2y - 8 = 0$

$y(y + 4) - 2(y + 4) = 0$

$(y + 4)(y - 2) = 0$

$y = -4, 2$

Quantity I ≥ Quantity II

24.(A)

Quantity I

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

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

$x(x - 4) - 1(x - 4) = 0$

$(x - 1)(x - 4) = 0$

$x = 1, 4$

Quantity II

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

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

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

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

$= y = -1, -2$

Quantity I > Quantity II

25. (D)

Quantity I : x where $x^3 - 12x^2 + 7x = 0$

$x(x^2 - 12x + 7) = 0$

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

$x^2 - 4x - 3x + 7 = 0$

$x = 0, 4, 3$

Quantity II : y where $y^3 - 13y^2 + 42y = 0$

$y(y^2 - 13y + 42) = 0$

$y^2 - 13y + 42 = 0$

$y^2 - 7y - 6y + 42 = 0$

$y = 0, 6, 7$

Hence, (D) Quantity I ≤ Quantity II

26. (D)

Quantity I : $x^2 + 25x + 136 = 0$

$x^2 + 25x + 136 = 0$

$x^2 + 17x + 8xx + 136 = 0$

$x = -17, -8$

Quantity II : $x^2 - 7x - 120 = 0$

$x^2 - 7x - 120 = 0$

$x^2 - 15x + 8x - 120 = 0$

$x = +15, -8$

Hence, (D) Quantity I ≤ Quantity II

27. (C)

Quantity I: $4x^4 = \frac{128}{x}$

$4x^5 = 128$

$x^5 = 32$

$x^5 = (2)^2$

$x = 2$

Quantity II: $\sqrt{x} + \frac{15x}{\sqrt{x}} = 4x^{\frac{5}{2}}$

$\frac{x + 15x}{\sqrt{x}} = 4x^{\frac{5}{2}}$

$x + 15x = 4x^3$

$16x = 4x^3$

$4x(4) = 4x(x^2)$

$x^2 = 4$

$x = \pm 2s$

Hence, Quantity I ≥ Quantity II

28. (D)

Quantity 1: $x^2 - 3481 = 0$

$X = \pm 59$

Quantity 2: $x^2 - 118x + 3481 = 0$

$X = +59, x = +59$

Hence, Quantity 1 ≤ Quantity 2

29. (C)

Quantity 1: $y^2 - 93y + 2160 = 0$

$X = +45, x = +48$

Quantity 2: $y^2 - 7y - 1710 = 0$

$Y = +45, y = -38$

Hence, Quantity 1 ≥ Quantity 2

30. (D)

Quantity 1: $4x^2 - 4x - 48 = 0$

$X = +4, x = -3$

Quantity 2: $3x^2 - 24x + 48 = 0$

$X = +4, x = +4$

Hence, Quantity 1≤ Quantity 2

31. (B)

x>0, Value of x is positive

y<0, Value of y is negative

So, quantity-I will always be negative

Hence, Quantity-I < Quantity II

32. (A)

$x^2 - 12x - 364 = 0$

$x = +26, x = -14$

y^2+31y+240 = 0
y = –15, y = –16
Hence, x>y

33. (E)
$5\sqrt{x}-\frac{28}{\sqrt{x}}=\sqrt{x}$
X= 7

$3\sqrt{y}+\frac{y-35}{\sqrt{y}}=-\sqrt{y}$
Y= 7
Hence, x=y

34. (E)
x= $x^2-5\sqrt{3}x+4\sqrt{3}x-60$
Values of x = $+5\sqrt{3}, -4\sqrt{3}$
y = $y^2-5\sqrt{2}y+3\sqrt{2}y-30$
Values of y = $+5\sqrt{2}, -3\sqrt{2}$
No relation

35. (E)
$x^2-4\sqrt{3}x-4\sqrt{3}x+48$
Values of x = $+4\sqrt{3}, +4\sqrt{3}$
$y^2-5\sqrt{2}y-4\sqrt{2}y+40$
Values of y = $+5\sqrt{2}, +4\sqrt{2}$
no relation

36. (C)
$5x^2$+19x+18=0
$5x^2$+10x+9x+18=0
Values of x = $-\frac{10}{5}=-2, -\frac{9}{5}=-1.8$
$4y^2$+20y+24=0
$4y^2$+12y+8y+24
Values of y = $-\frac{12}{4}=-3, -\frac{8}{4}=-2$
Hence, x≥y

37. (A)
I. x^2 + x – 12 = 0
x^2 +4x–3x – 12 = 0
x = +3, –4
II. y^2 + 13y + 42 = 0
y^2 + 6y+7y + 42 = 0
y = –6, –7
X>Y

38. (C)
I. $4x^2$ + 32x + 63 = 0
$4x^2$ + 18x+14x + 63 = 0
x = $-\frac{18}{4}=-4.5$
x = $-\frac{14}{4}=-3.5$
II. y^2 + 5y + 6 = 0
y^2 + 3y+2y + 6 = 0
y = –3, –2
X<Y

39.(B)
I.$10x^2-7x+1=0$
$10x^2-5x-2x+1=0$
x = $\frac{5}{10}$ = +0.5
x = $\frac{2}{10}$ = +0.2
II. $35y^2-12y+1=0$
$35y^2-7y-5y+1=0$
y = $\frac{7}{35}$ = +0.2
y = $\frac{5}{35}$ = +0.14
x ≥ y

40.(B)
I. $2x^2+3x-20=0$
$2x^2+8x-5x-20=0$
x = $\frac{-8}{2}=-4$
x = $\frac{5}{2}=+2.5$
II. $2y^2+19y+44=0$
$2y^2+11y+8y+44=0$
x = $\frac{-11}{2}=-5.5$
x = $\frac{-8}{2}=-4$
x ≥ y

41.(B)
I. $x^2-11x+24=0$
$x^2-8x-3x+24=0$
x = +8, +3
II. $2y^2-9y+9=0$
$2y^2-6y-3y+9=0$
y = $+\frac{6}{2}=+3$
y = $+\frac{3}{2}=+1.5$
x ≥ y

42. (C)
I. $x^2+3x-40=0$
$x^2+8x-5x-40=0$
x = –8, +5
II. $y^2-14y+48=0$
$y^2-8y-6y+48=0$
y = +8, +6
X<Y

43. (B)

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

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

$x=-2,+1$

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

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

$y=-3,-2$

$x \geq y$

44. (A)

I. $8x-5y=36$

II. $2x+3y=26$

By Solving

$x=+7$

$y=+4$

$X>Y$

45.(D)

I. $x^2=49$

$x=\pm 7$

II. $y^2-16y+63=0$

$y^2-9y-7y+63=0$

$y=+9,+7$

$X \leq Y$

46. (A)

I. $2x^2+13x+21=0$

$2x^2+6x+7x+21=0$

$x=\frac{-6}{2}=-3$

$x=\frac{-7}{2}=-3.5$

II. $2y^2+27y+88=0$

$2y^2+11y+16y+88=0$

$y=-11,-16$

$X>Y$

47.(B)

$x=+3,+\frac{4}{3}$

$y=+\frac{7}{2},+4$

$y>x$

48.(E)

$x=\frac{5}{2},3$

$y=2,\frac{7}{2}$

49.(C)

$x=\frac{5}{3},3$

$y=\frac{3}{5},\frac{5}{3}$

50.(A)

$x=4,\frac{7}{3}$

$y=\frac{8}{5},2$

$\therefore x>y$

51.(C)

$x=-6,-7$

$y=-7,-9$

52.(A)

$x=28$

$y=-4,-3$

53.(D)

$2401\ P^2=P^{-2}$

$P^4=\frac{1}{2401}$

$P=\left[\frac{1}{2401}\right]^{\frac{1}{4}}=\pm\frac{1}{7}$

Substituting the value of $P=\frac{1}{7}$

$q=\frac{3}{7},\frac{1}{7}$

54.(B)

$x=\sqrt{6.76}$

$=+2.6$

$y=\sqrt{13.69}$

$=+3.7$

55.(C)

$x^5=\frac{128}{4}=32$

x = + 2

$\sqrt{y}+\frac{15y}{\sqrt{y}} = 4y^{\frac{5}{2}}$

y = ± 2

56.(C)

$x^3 - 468 = 1729$

x = 13

$y^2 - 1733 + 1564 = 0$

y = ± 13

57.(C)

x = – 21, + 14

y = equation does not have real roots

58.(B)

x = + $\frac{6}{7}, +\frac{6}{7}$

y = + $\frac{3}{5}, +\frac{3}{5}$

59.(B)

x = + $\frac{1}{3}, +\frac{2}{3}$

y = + $\frac{1}{6}, -\frac{1}{3}$

60.(E)

x = + 2.43, – 1

y = – 9, + 12

61.(C)

$5 + 11 = x^2$

x = ± 4

y = ± 5

62.(A)

$5x^2 - 87x + 378 = 0$

$5x^2 - 42x - 45x + 378 = 0$

x = $\frac{42}{5}, \frac{45}{5}$

= 8.4, 9

$3y^2 - 49y + 200 = 0$

$3y^2 - 24y - 25y + 200 = 0$

x = $\frac{24}{3}, \frac{25}{3}$ (8, 8.33)

63.(E)

$10x^2 - x - 24 = 0$

$10x^2 - 16x + 15x - 24 = 0$

2x (5x – 8) + 3 (5x – 8)

x = $\frac{8}{5}, \frac{-3}{2}$

y (y – 2) = 0

y = 0,2

64.(D)

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

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

x (x – 3) – 2 (x – 3)

x = 2, 3

$2y^2 - 15y + 27 = 0$

$2y^2 - 9y - 6y + 27 = 0$

y (2y – 9) – 3 (2y – 9)

y = $\frac{9}{2}$, 3

65.(B)

5 (3x + 2y = 30)

2 (7x – 5y = 74)

15x + 10y = 1505

14x – 10y = 148

29x = 1653

x = 57, y = 65

66.(C)

$14x^2 - 37x + 24 = 0$

$14x^2 - 21x - 16x + 24 = 0$

7x (2x – 3) – 8 (2x – 3)

x = $\frac{3}{2}, \frac{8}{7}$

$28y^2 - 53y + 24 = 0$

$28y^2 - 32y - 21y + 24 = 0$

4 (7y – 8) – 3 (7y – 8) = 0

y = $\frac{8}{7}, \frac{3}{2}$

67.(C)

x^2 + 8x – 5x – 40 = 0

x (x + 8) – 5 (x + 8)

x = 5, x = – 8

y^2 – 8y – 6y + 48 = 0

y (y – 8) – 6 (y – 8)

y = 6, 8

68.(B)

x^2 + 2x – x – 2 = 0

x (x + 2) – 1 (x + 2) = 0

x = 1, – 2

y^2 + 5y + 6 = 0

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

y (y + 3) + 2 (y + 3)

y = – 2, – 3

69.(A)

$2x^2$ + 13x + 21 = 0

$2x^2$ + 7 x + 6x + 21 = 0

x (2x + 7) + 3 (2x + 7) = 0

x = – 7/2, – 3

$2y^2$ + 16y + 11y + 88 = 0

2y (y + 8) + 11 (y + 8)

y = – 8, – 11/2

70.(B)

x^2 + 11x + 30 = 0

x^2 + 6x + 5x + 3 = 0

x (x + 6) + 5 (x + 6)

x = – 5, – 6

y^2 + 12y + 36 = 0

y^2+ 6y + 6y + 36 = 0

$(y + 6)^2$ = 0 y = – 6, –6

71.(D)

$2x^2$ + x – 1 = 0

$2x^2$ + 2x – x – 1 = 0

2x (x + 1) – 1 (x + 1) = 0

x = – 1, 1/2

$2y^2$ – 3y + 1 = 0

$2y^2$ – 2y – y + 1 = 0

2y (y – 1) – 1 (y – 1) = 0

y = 1, 1/2

72.(D)

14 x – 25 = 59 – 7 x

21x = 84

x = 4

$\sqrt{y+222} - \sqrt{36} = \sqrt{81}$

$\sqrt{y+222} - 6 = 9$

$\sqrt{y+222} = 15$

y + 222 = 225

y = 3

73.(E)

$5x^2$ – 29x + 36 = 0

$5x^2$ – 20x – 9x + 36 = 0

5x (x – 4) + 9 (x – 4) = 0

x = 4, – 9/5

$10y^2$ – 3y – 27 = 0

$10y^2$ – 18y + 15y – 27 = 0

2y (5y – 9) + 3 (5y – 9)

y = 9/5, –3/2

74.(C)

$\sqrt{x} - \frac{\sqrt{6}}{\sqrt{x}} = 0$

$\sqrt{x} = \frac{\sqrt{6}}{\sqrt{x}}$

$x = \sqrt{6}$

$y^3 = 6^{3/2}$

$y = \sqrt{6}$

75.(B)

$3x^2 + 5x - 8 = 0$

$3x^2 + 8x - 3x - 8 = 0$

$3x^2 + 8x - 3x - 8 = 0$

$x(3x + 8) - 1(3x + 8) = 0$

$x = 1, -8/3$

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

$y(y - 3) - 1(y - 3) = 0$

$y = 1,3$

76.(C)

$x^2 + y^2 = 3341$

$x^2 - y^2 = 891$

$2x^2 = 4232$

$x = 46, -46$

$y = 35 - 35$

77.(E)

$p = 7, 5$

$q = 7, 4$

No relation

78.(D)

$p = -5$

$q = \pm 5$

$p \leq q$

79.(B)

$p = \pm 2$

$q = -2$

$p \geq q$

80.(A)

$p = 12$

$q = 11$

$p > q$

81.(D)

$p = -7, -6$

$q = - \pm 6$

$q \geq p$

82.(D)

$225x^2 - 4 = 0$

$(15x)^2 - (2)^2 = 0$

$(15x + 2)(15x - 2) = 0$

$x = -\frac{2}{15}, \frac{2}{15}$

$15y + 2 = 0$

$\Rightarrow y = -\frac{2}{15}$

$\therefore x \geq y$

83.(E)

$x = 7$

$y = 7$

$x = y$

84.(E)

$x = 14$

$y = 14$

$x = y$

85.(A)

$x = -3, -6$

$Y = 5,8$

$x < y$

86.(D)

$x = 19$

$y = \pm 19$

$x \geq y$

87.(E)

$\sqrt{441}\ x^2 - 111 = (15)^2$

$21x^2 - 111 = 225$

$21x^2 = 336$

$x^2 = 16$

$x = \pm 4$

$\sqrt{121}\ y^2 + (6)^3 = 260$

$11y^2 + 216 = 260$

$11y^2 = 44$

$y^2 = 4$

$y = \pm 2$

88.(B)

$17x + (13)^2 - 114 = (15)^2$

$17x + 169 - 114 = 225$

$17x = 170$

$x = 10$

$\sqrt{121}\ y^2 + (6)^3 = 260$

$\sqrt{121}\ y^2 = 260 - 216$

$11y^2 = 44$

$y = \pm 2$

89.(A)

$17x = 169 + 14 + 25 + 4x$

$17x = 218 + 4x$

$13x = 218$

$x = 16$

$9y - 345 = 4y - 260$

$5y = 85$

$y = 17$

90.(D)

$6y^2 + \frac{1}{2} = \frac{7}{2}y$

$12y^2 - 7y + 1 = 0$

$12y^2 - 44y - 3y + 1 = 0$

$4y(3y - 1) - 1(3y - 1) = 0$

$(3y - 1)(4y - 1) = 0$

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

$12x^2 - 10x + 2 = 0$

$6x^2 - 5x + 1 = 0$

$3x(2x - 1) - 1(2x - 1)$

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

91.(A)

$4x^2 = 49$

$x^2 = \frac{49}{4} = \pm\frac{7}{2}$

$9y^2 - 66y + 121 = 0$

$9y^2 - 33y - 33y + 121 = 0$

$3y(3y - 11) - 11(3y - 11)$

$y = \frac{11}{3}, \frac{11}{3}$

92.(E)

$4x + 7y = 209] \times 2$

$\Rightarrow 8x + 14y = 418$

$12x - 14y = -38$

$20x = 380$

$x = 19$

$y = 19$

$\therefore x = y$

93.(B)

$x = \frac{10}{6}, \frac{15}{6}$

$y = \frac{6}{15}, \frac{10}{15}$

$\therefore x > y$

94.(A) $6x + 5y = 30xy$

$5x + 6y = 35\ xy$

$\Rightarrow \frac{6}{y} + \frac{5}{x} = 30] \times 6$

$\frac{5}{y} + \frac{6}{x} = 35\ ] \times 5$

$\frac{36}{y} + \frac{30}{x} = 180\ ; \frac{25}{y} + \frac{30}{x} = 175$

From above equations

$x = \frac{11}{60}, y = \frac{11}{5}$

$\therefore x < y$

95.(E)

$x = 28$

Y = 28

x = y

96.(B)

x = 9

y = 8

x > y

97.(E)

$\sqrt{x+18}$ = 5

x + 18 = 25

x = 7

y^2 = 64

y = $\pm$ 8

No relation

98.(A)

y – x = 2 $\Rightarrow$ y = x + 2

$(x + 2)^2 – x^2 = 32$

$x^2 + 4 + 4x – x^2 = 32$

4x = 28 $\Rightarrow$ x = 7

y = 9

$\therefore$ x < y

99.(E)

x = $\sqrt{5}$

$y = 5^{1/2} = \sqrt{5}$

$\therefore$ x = y

100. (A)

$x = -\frac{13}{4}, \frac{-13}{2}$

$y = \frac{13}{5}, \frac{13}{4}$

$\therefore$ x < y

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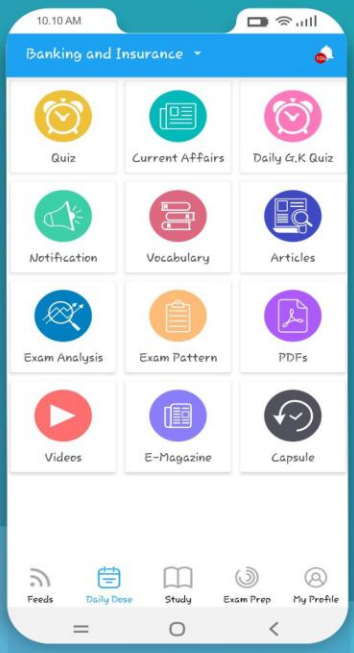

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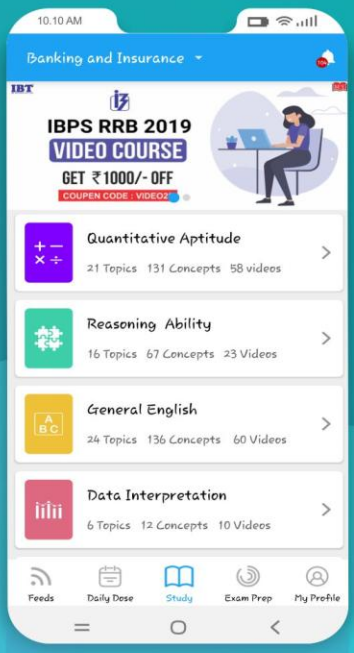

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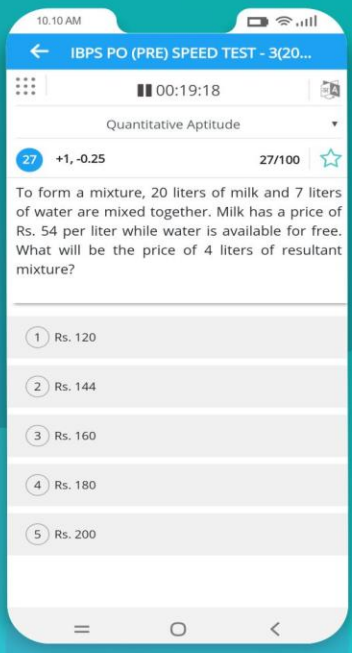

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