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Date: 5th Jan 2024

Quantitative Aptitude - Quadratic Equations

English

Q:1 Directions: In each of these questions, two equations I and II are given. You have to solve both equations and give an answer.

$$1.72x^2 - 101x + 35 = 0$$

II.
$$45y^2 - 62y + 21 = 0$$

5. x = y or relationship between x and y can't be established.

Q:2 Direction: In each of these questions, two equations (I) and (II) are given. You have to solve both equations and mark the appropriate answer.

1.
$$3x^2 - 8x - 16 = 0$$

II.
$$3y^2 - 19y + 28 = 0$$

5. x = y or Relationship between x and y can't be established.

Q:3 Directions: In each of these questions, two equations I and II are given. You have to solve both equations and give an answer.

I.
$$x^2 = 361$$

II.
$$y^3 = 7269 + 731$$

5. x = y or relationship between x and y can't be established.

Q:4 Directions: In each of these questions, two equations I and II are given. You have to solve both equations and give an answer.

1.
$$21/\sqrt{x} + 11/\sqrt{x} = 7\sqrt{x}$$

II.
$$2y^2 - 11y + 12 = 0$$

5. x = y or relationship between x and y can't be established.

Q:5 Directions: In each of these questions, two equations I and II are given. You have to solve both equations and give an answer.

$$1. 48x^2 - 24x + 3 = 0$$

II.
$$55y^2 + 53y + 12 = 0$$

5. x = y or relationship between x and y can't be established.

Q:6 Direction: In each of these questions, two equations (I) and (II) are given. You have to solve both equations and mark the appropriate answer.

I.
$$3x^2 - 26x + 56 = 0$$

II.
$$3y^2 - 35y + 98 = 0$$

5. x = y or Relationship between x and y cannot be determined

Q:7 Direction: In each of these questions, two equations (I) and (II) are given. You have to solve both equations and mark the appropriate answer.

$$1.5x^2 + 17x - 12 = 0$$

II.
$$3y^2 - 8y - 16 = 0$$

5. x = y or Relationship between x and y cannot be determined

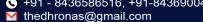
Q:8 Direction: In each of these questions, two equations (I) and (II) are given. You have to solve both equations and mark the appropriate answer.

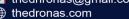
$$1.8x^2 - 95x + 77 = 0$$

II.
$$8y^2 + 45y + 52 = 0$$

1.
$$x > y$$

5. x = y or Relationship between x and y cannot be determined









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Quantitative Aptitude - Quadratic Equations

English

Q:9 Direction: In each of these questions, two equations (I) and (II) are given. You have to solve both equations and mark the appropriate answer.

$$1.5x^2 - 77x + 156 = 0$$

II.
$$25y^2 - 110y + 120 = 0$$

5. x = y or Relationship between x and y cannot be determined

Q:10 Direction: In each of these questions, two equations (I) and (II) are given. You have to solve both equations and mark the appropriate answer.

$$1. 4x^2 - 13x - 35 = 0$$

II.
$$2y^2 - 31y + 99 = 0$$

5. x = y or Relationship between x and y cannot be determined











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English

Answer Key

1. (5)	2. (5)	3. (2)	4. (1)	5. (1)	
6 . (4)	7. (5)	8. (1)	9. (2)	10 . (5)	

Answers and Solutions

Q:1 The correct answer is option 5 i.e. x = y or relationship between x and y can't be established.

Equation I

Figure 17

$$72x^2 - 101x + 35 = 0$$

or, $72x^2 - 56x - 45x + 35 = 0$
 $8x(9x - 7) - 5(9x - 7) = 0$
 $(8x - 5)(9x - 7) = 0$
 $x = 5/8, 7/9$
Equation II

$$45y^{2} - 62y + 21 = 0$$

$$45y^{2} - 35y - 27y + 21 = 0$$

$$5y(9y - 7) - 3(9y - 7) = 0$$

$$(5y - 3)(9y - 7) = 0$$

$$y = 3/5, 7/9$$

We can analyse,

Value of x	Value of y	Result
5/8	3/5	x > y
5/8	7/9	x < y
7/9	3/5	x > y
7/9	7/9	x = v

Hence, x = y or relationship between x and y can't be established.

Q:2 The correct answer is option 5 i.e. x = y or relationship between x and y can't be established.

Equation I

$$3x^{2} - 8x - 16 = 0$$

$$3x^{2} - 12x + 4x - 16 = 0$$

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

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

$$x = -4/3, 4$$
Equation II
$$3y^{2} - 19y + 28 = 0$$

$$3y^{2} - 12y - 7y + 28 = 0$$

$$3y(y - 4) - 7(y - 4) = 0$$

$$(3y - 7)(y - 4) = 0$$

$$y = 7/3, 4$$

We can analyse,

Value of x	Value of y	Result
-4/3	7/3	x < y
-4/3	4	x < y

4	7/3	x > y
4	4	x = y

Hence, x = y or relationship between x and y can't be established.

Q:3 The correct answer is option 2 i.e. x < y.

Equation I $x^2 = 361$ x = +19x = -19Equation II $y^3 = 7269 + 731$ $y^3 = 8000$ y = 20

We can analyse,

Value of x	Value of y	Result
+19	20	x < y
-19	20	x < y

Hence, x < y.

Q:4 The correct answer is option 1 i.e. x > y.

Equation I $21/\sqrt{x} + 11/\sqrt{x} = 7\sqrt{x}$ $(21 + 11)/\sqrt{x} = 7\sqrt{x}$ $32/\sqrt{x} = 7\sqrt{x}$ x = 32/7x = 32/7Equation II

 $2y^2 - 11y + 12 = 0$ $2y^2 - 8y - 3y + 12 = 0$ 2y(y - 4) - 3(y - 4) = 0(2y - 3)(y - 4) = 0y = 3/2, 4

We can analyse.

Value of x	Value of y	Result	
32/7	3/2	x > y	
32/7	4	x > y	

Hence, x > y.

Q:5 The correct answer is option 1 i.e. x > y.

Equation I

 $48x^2 - 24x + 3 = 0$ $48x^2 - 12x - 12x + 3 = 0$ 12x(4x-1)-3(4x-1)=0(12x - 3)(4x - 1) = 0x = 1/4, 1/4Equation II

 $55y^2 + 53y + 12 = 0$

 $55y^2 + 33y + 20y + 12 = 0$





















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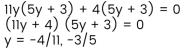
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Quantitative Aptitude - Quadratic Equations

English



We can analyse,

Value of x	Value of y	Result
1/4	-4/11	x > y
1/4	-4/11	x > y
1/4	-3/5	x > y
1/4	-3/5	x > y

Hence, x > y.

Q:6 The correct answer is Option 4 i.e. x ≤ y

Equation I

$$3x^{2} - 26x + 56 = 0$$

 $3x^{2} - 12x - 14x + 56 = 0$
 $3x(x - 4) - 14(x - 4) = 0$
 $(3x - 14)(x - 4) = 0$

x = 14/3, 4

Equation II
$$3y^2 - 35y + 98 = 0$$

$$3y^2 - 21y - 14y + 98 = 0$$

 $3y(y - 7) - 14(y - 7) = 0$

$$(3y - 14)(y - 7) = 0$$

y = 14/3, 7

We can analyse.

, ,		
Value of x	Value of y	Result
14/3	14/3	x = y
14/3	7	x < y
4	14/3	x < y
4	7	x < y

Hence, x ≤ y

Q:7 The correct answer is option 5 i.e. x = y or Relationship between x and y cannot be determined

Equation I

$$5x^2 + 17x - 12 = 0$$

$$5x^2 + 20x - 3x - 12 = 0$$

$$5x(x + 4) - 3(x + 4) = 0$$

$$(5x - 3)(x + 4) = 0$$

x = 3/5, -4

Equation II

$$3y^2 - 8y - 16 = 0$$

$$3y^2 - 12y + 4y - 16 = 0$$

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

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

y = -4/3, 4

We can analyse,

Value of x	Value of y	Result
3/5	-4/3	x > y
3/5	4	x < y
-4	-4/3	x < y
-4	4	x < y

Hence, x = y or Relationship between x and y cannot be determined

Q:8 The correct answer is Option 1 i.e. x > y

Equation I

$$8x^2 - 95x + 77 = 0$$

$$8x^2 - 88x - 7x + 77 = 0$$

 $8x(x - 11) - 7(x - 11) = 0$

$$(8x - 7)(x - 11) = 0$$

$$x = 11, 7/8$$

Equation II

$$3y^2 + 45y + 52 = 0$$

$$8y^2 + 45y + 52 = 0$$

 $8y^2 + 32y + 13y + 52 = 0$

$$8y(y + 4) + 13(y + 4) = 0$$

$$(8y + 13) (y + 4) = 0$$

$$y = -13/8, -4$$

We can analyse.

,,,			
	Value of x	Value of y	Result
	11	-13/8	x > y
	11	-4	x > y
	7/8	-13/8	x > y
	7/8	-4	x > v

Hence, x > y

Q:9 The correct answer is Option 2 i.e. x ≥ y

Eauation I

$$5x^2 - 77x + 156 = 0$$

$$5x^2 - 65x - 12x + 156 = 0$$

$$5x(x-13) - 12(x-13) = 0$$

$$(5x - 12)(x - 13) = 0$$

$$x = 13, 12/5$$

Equation II

$$25y^2 - 110y + 120 = 0$$

$$25y^2 - 110y + 120 = 0$$

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

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

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

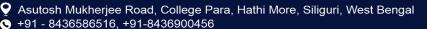
$$(5v - 12)(v - 2) = 0$$

$$y = 2, 12/5$$

We can analyse,

Value of x	Value of y	Result
13	2	x > y
13	12/5	x > y
12/5	2	x > y
12/5	12/5	x = y

Hence, x ≥ y





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Quantitative Aptitude - Quadratic Equations Date: 5th Jan 2024

English

Q:10 The correct answer is option 5 i.e. x = y or the Relationship between x and y cannot be determined.

Equation I

$$4x^2 - 13x - 35 = 0$$

$$4x^2 - 20x + 7x - 35 = 0$$

$$4x^{2} - 20x + 7x - 35 - 0$$

$$4x(x - 5) + 7(x - 5) = 0$$

$$(4x + 7)(x - 5) = 0$$

$$x = -7/4, 5$$

$$(4x + 7)(x - 5) = 0$$

$$x = -7/4$$
, 5

Equation II

$$2\dot{y}^2 - 31y + 99 = 0$$

$$2y^2 - 22y - 9y + 99 = 0$$

$$2y^{2} - 31y + 99 = 0$$

$$2y^{2} - 22y - 9y + 99 = 0$$

$$2y(y - 11) - 9(y - 11) = 0$$

$$(y - 11)(2y - 9) = 0$$

$$(y - 11) (2y - 9) = 0$$

y = 11, 9/2

We can analyse,

Value of x	Value of y	Result
-7/4	11	x < y
-7/4	9/2	x < y
5	11	x < y
5	9/2	x > y

Hence, x = y or Relationship between x and ycannot be determined.







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