

MATHS

BOOKS - ARIHANT PUBLICATION

BIHAR

LINEAR EQUATIONS

Solved Examples

1. Solve $\frac{2}{x-3} + \frac{3}{x-4} = \frac{5}{x}$, where $x \neq 3$,
 $x \neq 4$ and $x \neq 0$

A. $3\frac{1}{3}$

B. $3\frac{1}{2}$

C. $4\frac{1}{3}$

D. $4\frac{1}{2}$

Answer: A



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2. The length of rectangle is 8 cm more than its breadth. If the perimeter of the rectangle is 68 cm, its length and breadth are respectively

A. 20 cm, 10 cm

B. 21 cm, 13 cm

C. 25 cm, 15 cm

D. 30 cm, 20 cm

Answer: B



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3. By selling a car for Rs 72000, a person made a profit of 20%. Then, the cost price of the car is

A. Rs 60000

B. Rs 70000

C. Rs 80000

D. Rs 90000

Answer: A



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4. The system of equations has

$$x + 3y = 4 \text{ and } 2x + 6y = 8$$

A. unique solution

B. no solution

C. infinite solution

D. None of these

Answer: C



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5. The system of equations has unique solution of when

$$ax + by = c \text{ and } fx + my = n$$

A. $am - bf \neq 0$

B. $ab - mf = 0$

C. $am = bf$

D. None of these

Answer: A



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Exam Booster For Cracking Exam

1. If $\sqrt{3}x - 2 = 2\sqrt{3} + 4$, then the value of x is

A. $2(1 - \sqrt{3})$

B. $2(1 + \sqrt{3})$

C. $1 + \sqrt{3}$

D. $1 - \sqrt{3}$

Answer: B



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2.

If

$$\frac{3x + 6}{8} - \frac{11x - 8}{24} + \frac{x}{3} = \frac{3x}{4} - \frac{x + 7}{24}$$

,then the value of x is

A. -3

B. $\frac{3}{2}$

C. 3

D. $\frac{1}{3}$

Answer: C



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3. If $\frac{x^2 - 3x + 2}{x^2 - 5x + 4} = \frac{x^2 - 6x + 8}{x^2 - 9x + 14}$, then the value of x is

A. $2\frac{1}{2}$

B. $\frac{1}{2}$

C. 2

D. -2

Answer: D



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4. If $7x : 63 = 1 : 9$, then x is equal to

A. 1

B. 2

C. 3

D. -1

Answer: A



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5. If 5 is added to twice of a number it becomes 6, then the number is

A. 0.5

B. 5

C. 0.25

D. None of these

Answer: A



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6. The sum of the two numbers is 11 and their product is 30, then the numbers are

A. 8, 3

B. 9, 2

C. 7, 4

D. 6, 5

Answer: D



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7. If One number is thrice the other and their sum is 20, then the numbers are

A. 5, 15

B. 4, 12

C. 3, 9

D. None of these

Answer: A



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8. Sum of two numbers is 21 and their difference is 11, then the greatest number is

A. 5

B. 16

C. 9

D. 10

Answer: B



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9. Which of the following equations have $x = 2$ and $y = 1$ as a solution?

I. $2x + 5y = 9$

II. $5x + 3y = 14$

III. $2x + 3y = 7$

IV. $2x - 3y = 1$

A. I and IV

B. II and III

C. Only I

D. I, III and IV

Answer: D



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10. The line $3x - 5y = -10$ cuts y -axis at

A. (0.2)

B. (0.1)

C. (0.3)

D. (0.4)

Answer: A



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11. If $x + y = 7$ and $3x - 2y = 11$, then

A. $x = 2, y = 5$

B. $x = 5, y = 5$

C. $x = 5, y = 2$

D. $x = 0, y = 3$

Answer: C



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12. If $2x + 3y = \frac{11}{3}$ and $5x - 7y = \frac{31}{3}$, then the value of x and y are respectively is

A. $\frac{107}{87}, \frac{7}{87}$

B. $\frac{107}{87}, \frac{-7}{87}$

C. $\frac{160}{78}, \frac{-7}{87}$

D. $\frac{170}{87}, \frac{-7}{87}$

Answer: D



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13. The solution of the system of linear equation $0.4x + 0.3y=1.7$ and $0.7x - 0.02y=0.8$ is

A. $x = 3, y = 2$

B. $x = 2, y = -3$

C. $x = 2, y = 3$

D. None of these

Answer: C



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14. The solution of the pair of equation

$$\frac{x}{2} + y = 0.8 \text{ and } x + \frac{y}{2} = \frac{7}{10}, \text{ is}$$

A. $x = \frac{2}{5}, y = \frac{3}{5}$

B. $x = \frac{2}{3}, y = 5$

C. $x = \frac{2}{5}, y = \frac{5}{3}$

D. $x = \frac{3}{5}, y = \frac{2}{5}$

Answer: A



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15. Show that the system of equations

$$6x + 5y = 11, 9x + \frac{15}{2}y = 21.$$

has no solution

A. a unique solution

B. many solution

C. no solution

D. None of these

Answer: C



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16. The distance between two stations is 340 km. Two trains start simultaneously from these stations on parallel tracks to cross each other. The speed of one of them is greater than that of the other by 5 km/hr. If the distance between the two trains after 2 hours of their start is 30 km, find the speed of each train.

A. 75 km/h, 80 km/h

B. 60 km/h, 65 km/h

C. 80 km/h, 85 km/h

D. None of these

Answer: A



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17. about to only mathematics

A. 1411, 1079

B. 1411, 1097

C. 1422, 1079

D. None of these

Answer: A



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18. Three prizes are to be distributed in a quiz contest. The value of the second prize is five sixths the value of the first prize and the value of the third prize is four-fifths that of the second prize. If the total value of three prizes is Rs 150, find the value of each prize.

A. Rs 60, Rs 50, Rs 40

B. Rs 40, Rs 50, Rs 60

C. Rs 50, Rs 40, Rs 20

D. None of these

Answer: A



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19. One of the angle of a triangle is equal to the sum of the other two angles. If the ratio of the other two angles is 4:5, then the angles of triangle are

A. 40° , 50° , 90°

B. 40° , 60° , 80°

C. 50° , 50° , 80°

D. None of these

Answer: A



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20. Two planes start from a city and fly in opposite directions, one averaging a speed of 40 km/h greater than the others. If they are

3400 km apart after 5 h. Their average speeds are

A. 320 km/h, 360 km/h

B. 320 km/h, 90 km/h

C. 320 km/h, 280 km/h

D. None of these

Answer: A



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21. If a scooterist drives at the rate of 24 km/h, he reaches his destination 5 min too late, if he drives at the rate of 30 km/h, he reaches his destination 4 min too soon. Then, the distance of his destination is

A. 12 km

B. 9 km

C. 18 km

D. None of these

Answer: C



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22. A pharmacist needs to strengthen a 15% alcohol solution to one of 32% alcohol. How much pure alcohol should be added to 400 mL of the 15% solution?

A. 1000 ml

B. 68 ml

C. 100ml

D. 128 ml

Answer: C



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23. For what value of k , $4x + ky = 4$ and $3x + 2y = 6$ has infinitely many solutions?

A. $k = 3$

B. $k = 4$

C. $k = 5$

D. none of the above

Answer: A



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24. For what value(s) of k , $2x - ky = 4$ and $3x + 2y = 6$ has infinitely many solutions?

A. $k = \frac{4}{3}$

B. $k = -\frac{4}{3}$

C. $k = \frac{3}{4}$

D. $k = -\frac{3}{4}$

Answer: B



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25. For what value of α , system of equations $\alpha x + 4y = \alpha - 3$, $12x + \alpha y = \alpha$ will have a unique solution ?

A. $\alpha \neq \pm 6$

B. $\alpha \neq \pm 5$

C. $\alpha = 6$

D. None of these

Answer: D



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26. If $2x + y = 35$ and $3x + 4y = 65$, then the value of $\frac{x}{y}$ is

A. 2

B. 3

C. 4

D. 5

Answer: B



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27. The value of y in the solution of

$$2^{x+y} = 2^{x-y} = 16 \text{ is}$$

A. 0

B. 1

C. 2

D. 3

Answer: A



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28. Seven times a two -digit number is equal to four times the number obtained by reversing the order of its digits. If the difference between the digits is 3, find the number.

A. 10

B. 1

C. 2

D. 12

Answer: D



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29. A man went to the Reserve Bank of India with Rs.1000. He asked the cashier to give Rs 5 and Rs. 10 notes only in return. The man got 175 notes in all. Find how many notes and Rs. 10 did he receive?

A. 50

B. 25

C. 95

D. 75

Answer: B



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30. A number consists of two digits whose sum is five. When the digits are reversed, the number becomes greater by nine. Find the number.

A. 32

B. 23

C. 2

D. None of the above

Answer: B



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