MATHS

BOOKS - RS AGGARWAL MATHS (HINGLISH)

LINEAR EQUATIONS

Illustrative Examples

1. Solve: $8x = 20 + 3x$.

A. 4

B. 5

C. 6

D. 7

Answer: A

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2. Solve: $\dfrac{2}{3}x + 1 = \dfrac{7}{3}$.

A. 5

B. 4

C. 3

D. 2

Answer: D

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3. Solve: $\dfrac{1}{4}x + \dfrac{1}{6}x = x - 7.$

A. -6

B. 6

C. -12

D. 12

Answer: D

4. Solve: $\dfrac{y+6}{4} + \dfrac{y-3}{5} = \dfrac{5y-4}{8}$

A. 7

B. 6

C. 4

D. 8

Answer: D

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5. Solve: $\dfrac{3x+5}{2x+1} = \dfrac{1}{3}$.

A. 2

B. -2

C. 1

D. -1

Answer: B

6. Solve: $\dfrac{6x + 7}{3x + 2} = \dfrac{4x + 5}{2x + 3}$.

A. $\dfrac{13}{9}$

B. $-\dfrac{13}{9}$

C. $-\dfrac{11}{9}$

D. $\dfrac{11}{9}$

Answer: C

Applications Of Linear Equations

1. Two numbers are in the ratio $5 : 8$. If the sum of the number is 182, find the numbers

    A. $70, 112$

    B. $80, 50$

    C. $90, 110$

    D. $100, 82$

Answer: A

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2. The sum of the digits of a two-digits number is 15. If the number formed by reversing the digits is less than the original number by 27, find the original number. Check your solution.

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3. the denominator of a rational number is greater than its numerator by 3. If 3 is subtracted from the numerator and 2 is added to its denominator, the new number becomes $\frac{1}{5}$. Find the original number. Check your solution.

A. $\dfrac{5}{8}$

B. $\dfrac{3}{8}$

C. $\dfrac{7}{8}$

D. $\dfrac{9}{8}$

Answer: A

4. The length of a rectangle exceeds its breadth by 9 cm. If length and breadth are each increased by 3 cm. the area of the new rectangle will be $84cm^2$ more than that of the given rectangle. Find the length and breadth of the given rectangle.

A. $= 18cm$

B. $= 10cm$

C. $= 8cm$

D. $= 6cm$

Answer: C

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5. A steamer goes downstream and covers distance between two ports in 4 hours, while it covers the same distance upstream in 5 hours.

If the speed of the stream is $2k\dfrac{m}{h}$, then find the speed of the streamer in still water.

A. 26 Km/hr

B. 37 Km/hr

C. 18 Km/hr

D. 9 Km/hr

Answer: C

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6. The distance between two stations is 425 km. Two trains start simultaneously from these stations on parallel tracks to cross each other. The speed of one of them is greaten than that of the other by 5 km/h. If the distance between the two trains after 3 hours of their start is 20 km, find the speed of each train. Check your solution.

7. Two years ago, father was 3 times as old as his son and two years hence, twice his age will be equal to five times that of his son's age .Find their present ages.

    A. 14 and 38

    B. 12 and 36

    C. 14 and 32

    D. 12 and 38

Answer: A

Exercise 8 A

1. $8x + 3 = 27 + 2x$

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2. $5x + 7 = 2x - 8$

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3. solve $2z - 1 = 14 - z$

4. Solve $9x + 5 = 4(x - 2) + 8$

A. -1

B. -2

C. 1

D. 2

Answer: A

5. $\dfrac{7y}{5} = y - 4$

    A. 10

    B. -10

    C. 20

    D. -20

Answer: B

6. Solve $3x + \dfrac{2}{3} = 2x + 1$

   A. $\dfrac{1}{4}$

   B. $\dfrac{1}{3}$

   C. $\dfrac{1}{5}$

   D. $\dfrac{1}{7}$

Answer: B

7. $15(y - 4) - 2(y - 9) + 5(y + 6) = 0$

A. $\dfrac{2}{3}$

B. $\dfrac{4}{3}$

C. $\dfrac{5}{3}$

D. $\dfrac{7}{3}$

Answer: A

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8. solve

$$3(5x - 7) - 2(9x - 11) = 4(8x - 13) - 17$$

A. 1

B. 2

C. 3

D. 4

Answer: B

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9. $\dfrac{x-5}{2} - \dfrac{x-3}{5} = \dfrac{1}{2}$

A. 7

B. 9

C. 8

D. 7

Answer: C

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10. $\dfrac{3t-2}{4} - \dfrac{2t+3}{3} = \dfrac{2}{3} - t$

11. $\dfrac{2x + 7}{5} - \dfrac{3x + 11}{2} = \dfrac{2x + 8}{3} - 5$

A. 1

B. -1

C. 2

D. -2

Answer: B

12. solve $\dfrac{5x - 4}{6} = 4x + 1 - \dfrac{3x + 10}{2}$

13. $5x - \dfrac{1}{3}(x + 1) = 6\left(x + \dfrac{1}{30}\right)$

14. $4 - \dfrac{2(z - 4)}{3} = \dfrac{1}{2}(2z + 5)$

15. $\dfrac{3(y-5)}{4} - 4y = 3 - \dfrac{y-3}{2}$

16. $\dfrac{8x-3}{3x} = 2$

17. $\dfrac{9x}{7-6x} = 15$

18. $\dfrac{3x}{5x + 2} = -4$

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19. $\dfrac{6y - 5}{2y} = \dfrac{7}{9}$

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20. $\dfrac{2 - 9z}{17 - 4z} = \dfrac{4}{5}$

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21. $\dfrac{4x + 7}{9 - 3x} = \dfrac{1}{4}$

A. -3

B. 0

C. 2

D. -1

Answer: D

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22. $\dfrac{7Y + 4}{Y + 2} = \dfrac{-4}{3}$

23. $\dfrac{15(2 - y) - 5(y + 6)}{1 - 3y} = 10$

24. $\dfrac{2x - (7 - 5x)}{9x - (3 + 4x)} = \dfrac{7}{6}$

25. $m - \dfrac{m - 1}{2} = 1 - \dfrac{m - 2}{3}$

26. $\dfrac{3x + 5}{4x + 2} = \dfrac{3x + 4}{4x + 7}$

A. $\dfrac{27}{19}$

B. $-\dfrac{27}{19}$

C. $-\dfrac{19}{27}$

D. $\dfrac{19}{27}$

Answer: B

27. $\dfrac{9x - 7}{3x + 5} = \dfrac{3x - 4}{x + 6}$ then, $x = $?

28. $\dfrac{2 - 7x}{1 - 5x} = \dfrac{3 + 7x}{4 + 5x}$

1. Two numbers are in the ratio $8:3$. If the sum of the number is 143, find the smaller number.

A. 104

B. 84

C. 39

D. 40

Answer: C

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2. $\dfrac{2}{3}$ of a number is 20 less than the original number. Find the number.

A. 40

B. 50

C. 60

D. 70

Answer: C

3. Four-fifths of a number is 10 more than two-thirds of the number. Find the number.

A. 25

B. 35

C. 45

D. 75

Answer: D

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4. Twenty-four is divided into two parts such that 7 times the first part added to 5 times the second part makes 146. Find each part.

A. 10, 14

B. 13, 11

C. 12, 12

D. None

Answer: B

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5. A number whose fifth part increased by 5 is equal to its fourth part diminished by 5. Find the number.

A. 200

B. 300

C. 400

D. 500

Answer: A

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6. Three numbers are in the ratio of $(4:5:6)$. If the sum of the largest and the smallest equals the sum of the third and 55, find the numbers.

A. 33, 44, 55

B. 44, 55, 66

C. 55, 66, 77

D. 66, 77, 88

Answer: B

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7. If 10 be added to four times a certain number, the result is 5 less than five times the number. Find the number.

A. 25

B. 15

C. 16

D. 18

Answer: B

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8. Two numbers are such that the ratio between them is $3:5$. If each is increased by 10, the ratio between the new numbers so formed is $5:7$. Find the original numbers.

A. $10, 15$

B. $15, 25$

C. $9, 15$

D. $20, 35$

Answer: B

9. Find three consecutive odd numbers whose sum is 147.

A. 41, 43, 45

B. 45, 47, 49

C. 47, 49, 51

D. 49, 51, 53

Answer: C

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10. Find three consecutive even numbers whose sum is 234.

    A. 76, 78, 80

    B. 80, 82, 84

    C. 74, 76, 78

    D. None

Answer: A

11. The sum of the digits of a two-digits number is 12. If the number formed by reversing the digits is less than the original number by 54, find the original number.

A. 29

B. 39

C. 92

D. 93

Answer: B

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12. The digit in the tens place of a two-digit number is three times that in the units place. If the digits are reversed, the new number will be 36 less than the original number. Find the original number number. Check your solution.

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13. The denominator of a rational number is greater than its numerator by 7. If the

numerator is increased by 17 and the denominator decreased by 6, the new number becomes 2. Find the original number.

14. In a fraction, twice the numerator is 2 more than the denominator. If 3 is added to the numerator and to the denominator, the new fraction is $\frac{2}{3}$. Find the original fraction.

A. $\frac{5}{12}$

B. $\dfrac{7}{12}$

C. $\dfrac{3}{12}$

D. none of these

Answer: B

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15. The length of a rectangle exceeds its breadth by 7 cm. If the length is decreased by 4 cm , and the breadth is increased by 3 cm, the area of the new rectangle is the same as

the area of the original ractangle. Find the length and breadth of the original rectangle.

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16. The width of a rectangle is two-thirds its length. If the perimeter is 180 metres, find the dimensions of the rectangle.

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17. An altitude of a triangle is five-third the length of its corresponding base. If the altitude be increased by 4 cm and the base decreased by 2 cm, the area of the triangle remains the same. Find the base and the altitude of the triangle.

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18. Two angles of a triangle are in the ratio $(4:5)$. If the sum of these angles is equal to

the third angle, find the smaller angle of the triangle.

A. $40°$

B. $50°$

C. $60°$

D. $65°$

Answer: A

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19. A steamer goes downstream from one point to another in 9 hours. IF covers the same distance upstream in 10 hours. If the speed of the stream be 1 km/hr, find the speed of the steamer in still water and the distance between the ports.

20. The distance between two stations is 300 km. Two motorcyclists start simultaneously

from these stations and move towards each other. The speed of one of them is 7 km/h more than that of the other. If the distance between them after 2 hours of their start is 34 km. Find the speed of each motorcyclist. Check your solution.

21. Divide 150 into three parts such that the second number is five-sixths the first and the

third number is four-fifths the second. Find the largest part.

A. 60

B. 50

C. 40

D. 55

Answer: A

22. Divide 4500 into two parts such that 5% of the first part is equal to 10% of the second part

23. Rakhi's mother is four times as old as Rakhi. After 5 years, her mother will be three times as old as she will be then. Find their present ages.

A. 40, 20

B. 50, 15

C. 40, 10

D. 45, 10

Answer: C

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24. Baichungs father is 26 years younger than Baichungs grandfather and 29 years older than Baichung. The sum of the ages of all the

three is 135 years. What is the age of each one of them?

25. A man is 10 times older than his grandson. He is also 54 years older than him. Find the present age of the man.

   A. 60 years

   B. 65 years

   C. 70 years

D. 80 years

Answer: A

26. The difference between the ages of two cousins is 10 years. 15 years ago, if the elder one was twice as old as the younger one, find their present ages.

A. 15 and 25

B. 25 and 35

C. 20 and 30

D. 10 and 20

Answer: B

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27. Half of a herd of deer are grazing in the field and three fourths of the remaining are playing nearby. The rest 9 are drinking water

from the pond. Find the number of deer in the herd.

A. 45

B. 54

C. 27

D. 72

Answer: D

Exercise 8 C

1. If $2x - 3 = x + 2$, then $x = $?

A. 1

B. 3

C. 5

D. 7

Answer: C

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2. Solve 5x + \frac{7}{2} = \frac{3}{2}x - 14

- 5
- -5
- 6
- -6

Answer:

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3. If $z = \dfrac{4}{5}(z + 10)$, then $z = ?$

    A. 40

B. 20

C. 10

D. 60

Answer:

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4. If $3m = 5m - \dfrac{8}{5}$, then $m = $?

A. $\dfrac{2}{5}$

B. $\dfrac{3}{5}$

C. $\dfrac{4}{5}$

D. $\dfrac{1}{5}$

Answer:

5. If $5t - 3 = 3t - 5$, then $t = $?

A. 1

B. -1

C. 2

D. -2

Answer:

6. If $2y + \dfrac{5}{3} = \dfrac{26}{3} - y$ then $y = $?

A. 1

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

C. $\dfrac{6}{5}$

D. $\dfrac{7}{3}$

Answer:

7. If $\dfrac{6x+1}{3} + 1 = \dfrac{x-3}{6}$, then $x = ?$

A. 1

B. -1

C. 3

D. -3

Answer:

8. If $\dfrac{n}{2} - \dfrac{3n}{4} + \dfrac{5n}{6} = 21$, then $n = $?

A. 30

B. 42

C. 36

D. 28

Answer:

9. If $\dfrac{x+1}{2x+3} = \dfrac{3}{8}$, then $x = $?

A. $\dfrac{1}{4}$

B. $\dfrac{1}{3}$

C. $\dfrac{1}{6}$

D. $\dfrac{1}{2}$

Answer:

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10. If $\dfrac{4x + 8}{5x + 8} = \dfrac{5}{6}$, then $x = ?$

A. 4

B. 6

C. 8

D. 12

Answer:

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11. If $\dfrac{n}{n+15} = \dfrac{4}{9}$, then $n = $?

A. 4

B. 6

C. 9

D. 12

Answer:

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12. If $3(t - 3) = 5(2t + 1)$, then $t = \,?$

A. -2

B. 2

C. -3

D. 3

Answer:

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13. Four-fifths of a number is greater than three-fourths of the number by 4. The number is

    A. 12

    B. 64

    C. 80

    D. 102

Answer:

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14. The ages of A and B are in the ratio $3:7$. Five years from now the ratio of their ages will be $1:2$. The present age of B is

A. 20 years

B. 28 years

C. 15 years

D. 21 years

Answer:

15. The base of an isosceles triangle is 6 cm and its perimeter is 16 cm. Length of each of the equal sides is

A. 4 cm

B. 5 cm

C. 3 cm

D. 6 cm

Answer:

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16. Sum of three consecutive integers is 51. The middle one is

A. 14

B. 15

C. 16

D. 17

Answer:

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17. The sum of two numbers is 95. If one exceeds the other by 15, then the smaller of the two is

A. 40

B. 35

C. 45

D. 55

Answer:

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18. The number of boys and girls in a class are in the ratio 7:5. The number of boys is 8 more than the number of girls. What is the total class strength?

A. 56

B. 52

C. 45

D. 36

Answer:

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1. Subtract $4a^2 + 5b^2 - 6c^2 + 8$ from $2a^2 - 3b^2 - 4c^2 - 5$.

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2. Find each of the following products:

(i) $(4a + 5b) \times (5a - 6b)$

(ii) $(6x^2 - x + 8) \times (x^2 - 3)$

3. $\dfrac{5a^3 - 4a^2 + 3a + 18}{a^2 - 2a + 3}$

4. If $\left(x - \dfrac{1}{x} \right) = 4$, find the value of (i) $\left(x^2 - \dfrac{1}{x^2} \right)$, (ii) $\left(x^4 + \dfrac{1}{x^4} \right)$.

5. Evaluate $\left\{(83)^2 - (17)^2\right\}$.

6. Factorise:

(i) $x^3 - 3x^2 + x - 3$

(ii) $63x^2y^2 - 7$

(iii) $1 - 6x + 9x^2$

(iv) $7x^2 - 19x - 6$

7. Solve: $\dfrac{2x + 7}{3x + 5} = \dfrac{15}{17}$.

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Test Paper 8 B

1. 5 years ago a man was 7 times as old as his son. After 5 years he will be thrice as old as his son. Find their present ages.

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2. $ab - a - b + 1 = ?$

A. $(1 - a)(1 - b)$

B. $(1 - a)(b - 1)$

C. $(a - 1)(b - 1)$

D. $(a - 1)(1 - b)$

Answer:

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3. $3 + 23x - 8x^2 = ?$

A. $(1 - 8x)(3 + x)$

B. $(1 + 8x)(3 + x)$

C. $(1 - 8x)(3 - x)$

D. none of these

Answer:

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4. $7x^2 - 19x - 6 = $?

A. $(x - 3)(7x + 2)$

B. $(x + 3)(7x - 2)$

C. $(x - 3)(7x - 2)$

D. $(7x - 3)(x + 2)$

Answer:

5. $12x^2 + 60x + 75 = ?$

A. $(2x + 5)(6x + 5)$

B. $(3x + 5)^2$

C. $3(2x + 5)^2$

D. none of these

Answer:

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6. $10p^2 + 11p + 3 = $?

A. $(2p + 3)(5p + 1)$

B. $(5p + 3)(2p + 1)$

C. $(5p - 3)(2p - 1)$

D. none of these

Answer:

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7. $8x^3 - 2x = ?$

A. $(4x - 1)(2x - 1)x$

B. $(2x^2 + 1)(2x - 1)$

C. $2x(2x - 1)(2x + 1)$

D. none of these

Answer:

8. $\dfrac{x+5}{2} + \dfrac{x-5}{3} = \dfrac{25}{6}$

A. $x = 3$

B. $x = 4$

C. $x = 5$

D. $x = 2$

Answer:

Test Paper 8 C Fill In The Blanks

1. Factorize

$$x^2 - 18x + 81 = (\ldots\ldots)$$

$$4 - 36x^2 = (\ldots\ldots)(\ldots\ldots)(\ldots\ldots)$$

$$x^2 - 14x + 13 = (\ldots\ldots)(\ldots\ldots)$$

$$9z^2 - x^2 - 4y^2 + 4xy = (\ldots\ldots)(\ldots\ldots)$$

$$abc - ab - c + 1 = (\ldots\ldots)(\ldots\ldots)$$

1. Write 'T' for true and 'F' for false for each of the following:

(i) $(5 - 3x^2)$ is a binomial.

(ii) -8 is a monomial.

(iii)(5a - 9b) - (-6a + 2b) = (-a -7b)

(iv)When x = 2 and y = 1, the value of $\dfrac{-8}{7}x^3y^4 is \dfrac{-64}{7}$.

(v) $\dfrac{x}{4} + \dfrac{x}{6} - \dfrac{x}{2} = \dfrac{3}{4} \Rightarrow x = -9.$

(vi) $2x - 5 = 0 \Rightarrow x = \dfrac{2}{5}.$

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