MATHS

BOOKS - ASHOK PUBLICATION ASSAM

Linear Equations in one variable

Example

1. Solve the following equations.

$x - 2 = 7$

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2. Solve the following equations.

$y + 3 = 10$

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3. Solve the following equations.

$6 = z + 2$

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4. Solve the following equations.

$$\frac{3}{7} + x = \frac{17}{7}$$

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5. Solve the following equations.

$$6x = 12$$

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6. Solve the following equations.

$$\frac{t}{5} = 10$$

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7. Solve the following equations.

$$\frac{2x}{3} = 18$$

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8. Solve the following equations.

$$1.6 = \frac{y}{1.5}$$

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9. Solve the following equations.

$$7x - 5 = 16$$

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10. Solve the following equations.

$14y - 8 = 13$

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11. Solve the following equations.

$17 + 6P = 9$

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12. Solve the following equations.

$x/3 = 1$

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13. If you subtract $\frac{1}{2}$ from a number and multiply the result by $\frac{1}{2}$, you get $\frac{1}{8}$. What is the number?

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14. The perimeter of a rectangular swimming pool is 154 m. Its length is 2m more than twice its breadth. What are the length and the breadth of the pool?

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15. The base of an isoceies triangle is $\frac{4}{3}$ cm. The permeter of the traingle is $4\frac{2}{15}$ cm. What is the length of eigher of the remaining equal sides?

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16. Sum of two numbers is 95. If one exceeds the other by 15, find the numbers.


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17. Two numbers are in the ratio $5:3$. If they differ by 18, what are the numbers?


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18. Three consecutive integers add up to 51. What are these integers?

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19. The sum of three consecutive multiples of 8 is 888. Find the multiples.

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20. Three consecutive integers are such that when they are taken in increasing order

andmultiplied by 2,3 and 4 respectively, they add up to 74. Find these numbers.

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21. The ages of Rahul and Haroon are in the ratio $5:7$, Four years later the sum of their ages will be 56 years. What are their present ages?

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22. 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?

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23. Baichung's father is 26 years younger than Baichung's gransfather 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?

24. Fifteen years from now Ravi's age will be four times his present age. What is Ravi's present age?

25. A rational number is such that when you multiply it by $\frac{5}{2}$ and $\frac{2}{3}$ add to the product, you get $-\frac{7}{12}$. What is the number?

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26. Lakshmi is a cashier in a bank. She has currency notes of denominations Rs 100, Rs 50 and Rs 10, respectively. The ratio of the number of these notes is $2:3:5$. The total

cash with Lakshmi is Rs. 4,00,000. How many notes of each denomination does she have?

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27. I have a total of Rs 300 in coins of denomination Rs 1, Rs 2 and Rs 5, the number of Rs 2 coins is 3 times the numbers of Rs 5 coins. The total number of coins is 160. How many coins of cash denomination are with me?

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28. The organisers of an eassy competition decide that a winner in the competition gets a prize of Rs 100 and a participant who does not win gets a prize of Rs. 25. The total prize money distributed is Rs 3,000. Find the number of winners, if the total number of participants is 63.

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29. Solve the following equations and check you results.

$3x = 2x + 18$

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30. Solve the following equations and check you results.

$5t - 3 = 3t - 5$

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31. Solve the following equations and check you results.

$5x + 9 = 5 + 3x$

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32. Solve the following equations and check you results.

$4z + 3 = 6 + 2z$

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33. Solve the following equations and check you results.

$2x - 1 = 14 - x$

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34. Solve the following equations and check you results.

$8x + 4 = 3(x - 1) + 7$

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35. Solve the following equations and check you results.

$$x = \frac{4}{5}(x + 10)$$

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36. Solve the following equations and check you results.

$$\frac{2x}{3} + 1 = \frac{7x}{15} + 3$$

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37. Solve the following equations and check you results.

$$2y + \frac{5}{3} = \frac{26}{3} - y$$

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38. Solve the following equations and check you results.

$$3n = 5n - \frac{8}{5}$$

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39. Amina thinks of a number and subtracts $\frac{5}{2}$ from it. She multiplies the result by 8. The result now obtained is 3 times the same number she thought of. What is the number?

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40. A positive number is 5 times another number. If 21 is added to both the numbers, then one of the new numbers becomes twice the other new number. What are the numbers?

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41. Sum of the digits of a two-digit number is 9. When we interchange the digits, it is found that the resulting new number is greater than the original number by 27. What is the two-digit number?

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42. One of the two digits of a two digit number is three times the other digit. If you

interchange the digits of this two-digit number and add the resulting number to the original number, you get 88. What is the orginal number?

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43. Shobo's mother's present age is six times Shobo's present age. Shobo's age five years from now will be one third of his mother's present age What are their present ages?

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44. There is a narrow rectangular plot, reserved for a school, in Mahuli village. The length and breadth of the plot are in the ratio $11:4$. At the rate Rs 100 per metre it will cost the village panchayat Rs 75000 to fence the plot. What are the dimensions of the plot?

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45. Hasan buys two kinds of cloth materials for school uniforms, shirt material that costs him

Rs 50 per metre and trouser material that costs him Rs 90 per metre. For every 2 meteres of the trousers material he buys 3 metres of the shirt materials. He sells the materials at 12% and 10% profit respectively. His total sale is Rs 36,660. How much trouser material did he buy?

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46. 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.

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47. A grandfather is ten times older than his granddaughter. He is also. 54-years older than her. Find their present ages.

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48. Aman's age is there times his son's age. Ten years ago he was five times his son's age. Find their present ages.

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49. Solve the following linear equations.

$$\frac{x}{2} - \frac{1}{5} = \frac{x}{3} + \frac{1}{4}$$

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50. Solve the following linear equations.

$$\frac{n}{2} - \frac{3n}{4} + \frac{5n}{6} = 21$$

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51. Solve the following linear equations.

$$x + 7 - \frac{8x}{3} = \frac{17}{6} - \frac{5x}{2}$$

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52. Solve the following linear equations.

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

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53. Solve the following linear equations.

$$\frac{3t-2}{4} - \frac{2t+3}{3} = \frac{2}{3} - t$$

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54. Solve the following linear equations.

$$m - \frac{m-1}{2} = 1 - \frac{m-2}{3}$$

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55. Simplify and solve the following linear equations.

$$3(t-3) = 5(2t+1)$$

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56. Simplify and solve the following linear equations.

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

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57. Simplify and solve the following linear equations.

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

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58. Simplify and solve the following linear equations.

$0.25(4f - 3) = 0.05(10f - 9)$

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59. Solve the following equations.

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

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60. Solve the following equation $\frac{9x}{7-6x} = 15$

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61. Solve the following equations.

$$\frac{z}{z+15} = \frac{4}{9}$$

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62. Solve the following equations.

$$\frac{3y+4}{2-6y} = \frac{-2}{5}$$

Watch Video Solution

63. Solve the following equations.

$$\frac{7y+4}{y+2} = \frac{-4}{3}$$

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64. The ages of Hari and Harry are in the ratio $5:7$. Four years from now the ratio of their ages will be $3:4$. Find their present ages.

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65. The denominator of a rational number is greater than its numerator by 8. If the numberator is increased by 17 and the denominator is decreased by 1, the number obtained is $\frac{3}{2}$. Find the rational number.

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66. Solve the following equations and verify in each case:

$x + 28 = 50$

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67. Solve the following equations and verify in each case:

$x - 35 = 34$

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68. Solve the following equations and verify in each case:

$-5 + y = -12$

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69. Solve the following equations and verify in each case:

$-8 + x = -2$

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70. Solve the following equations and verify in each case:

$2y + 3 = y + 2$

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71. Solve the following equations and verify in each case:

$5y + 9 = 4y$

Watch Video Solution

72. Solve the following equations and verify in each case:

$8t + 1 = 7t + 5$

Watch Video Solution

73. Solve the following equations and verify in each case:

$5z = 9 + 4z$

Watch Video Solution

74. Solve the following equations and verify in each case:

$5y - 9 = 3y + 1$

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75. Solve the following equations and verify in each case:

$3x = 15 + 2x$

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76. Solve the following equations and verify in each case:

$-2y + 5 = -y + 2$

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77. Solve the following equations and verify in each case:

$$16 = x + \frac{1}{2}$$

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78. Solve the following equations and verify in each case:

$$9x - 3x = 5x + 2$$

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79. Solve the following equations and verify in each case:

$4y = 23$

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80. Solve the following equations and verify in each case:

$3x = 0$

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81. Solve the following equations and verify in each case:

$$\frac{n}{6} = \frac{5}{3}$$

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82. Solve the following equations and verify in each case:

$$\frac{p}{6} = \frac{2}{3}$$

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83. Solve the following equations and verify in each case:

$$4K = \frac{3}{8}$$

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84. Solve the following equations and verify in each case:

$$\frac{4}{3y} = -2$$

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85. Solve the following equations and verify in each case:

$$\frac{4}{9}x = -\frac{8}{3}$$

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86. Solve:

$$5y - 8 = 2y + 7$$

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87. Solve:

$x = 10x - 72$

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88. Solve:

$-6x = 20 - x$

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89. Solve:

$5x - 27 + 17 = x + 1$

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90. Solve:

$5(x + 3) = 9$

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91. Solve:

$2(3y - 1) = -26$

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92. Solve:

$\frac{2}{5}(2x - 5) = 5$

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93. Solve:

$2(x+8)+3(x+3)=0$

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94. Solve:

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

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95. Solve:

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

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96. Solve:

$$\frac{x}{7}+\frac{5}{2}=\frac{\alpha}{4}-\frac{1}{2}$$

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97. Solve:

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

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98. Solve:

$7(x+4)=4(x+10)$

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99. Solve:

$$\frac{\alpha}{2} + 5 = \frac{\alpha}{3} + 7$$

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100. Solve:

$$a(x - a) = b(x - b)$$

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101. Solve:

$a(x+b) = 2ax + b$

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102. Solve: 5x = 35

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103. Solve: $\frac{x}{2} - \frac{1-2x}{3} = 2$

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104. Solve: 3x -8 = x + 16

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105. Solve: $\frac{x-3}{2} - \frac{4-x}{5} = \frac{3x+1}{10}$

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106. Solve: $\frac{3x+5}{2} - \frac{2x-3}{2} = \frac{x-2}{6}$

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107. Solve: $\frac{2x-4}{3}-(3x-1)=\frac{x-5}{6}$

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108. Solve: $\frac{x}{2}-\frac{x}{3}+\frac{x}{4}=2-\frac{x}{6}+\frac{5x}{12}$

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109. Solve: $-11x+2(3-x)=32$

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110. Solve: $4(2-x)+2(3-3x)=30$

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111. Solve: $4(p+3)-5(1-p)=2(3p+11)$

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112. Solve: $5(x-2)-4(x-2)=2-x$

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113. Solve: $\frac{7x}{8} - (x - 2) = 2 - \frac{x}{2}$

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114. Solve: $\frac{x + 1}{x - 1} - \frac{1}{2} = \frac{1}{3}$

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115. Solve: $\frac{1}{3(x - 3)} = \frac{1}{5(x - 5)}$

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116. Solve: $18x = 54$

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117. Solve: $12x + 9 = 45$

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118. Solve: $5(x - 2) = 3(x + 3)$

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119. Solve:

$$(x+2)(3x+4)-6x=10+(3x+2)(x+1)$$

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120. Solve: $\frac{x}{6}+5=\frac{x}{3}+\frac{x}{4}$

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121. Express the following statements by equations :

The sum of two numbers is 91 and the smaller one is 30.

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122. Express the following statements by equations :

The sum of two numbers, one of which is less than the other by 5, is 23.

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123. Express the following statements by equations :

The sum of three consecutive integers is 36.

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124. Express the following statements by equations :

The sum of three consecutive even integers is 72.

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125. Express the following statements by equations :

The sum of two numbers is 41 and their difference is 21.

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126. Express the following statements by equations :

The sum of the ages A and B is 25 years, the age of A is less than that of B by 5 years.

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127. Express the following statements by equations :

On subtracting 22 from a number we get 8.

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128. Express the following statements by equations :

Each one of three boys had the same amount of money. They together gave Rs 25 to a poor student and are left with only Rs. 5.

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129. Express the following statements by equations :

A man distributed his savings equally among his four sons and each son received Rs. 300.

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130. Express the following statements by equations :

If the price of a duck is 15 times that of an egg, the total price of 3 ducks and 10 eggs is Rs 110.

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131. Express the following statements by equations :

One-thrid of x rupees added to 10 rupees becomes 25 rupees.

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132. Express the following statements by equations :

Adam is x years old. Eve is younger than Adam by 5 years but the sum of their ages is 'a' years.

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133. Express the following statements by equations :

The sum of two numbers is 53 and the difference between them is 3.

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134. Express the following statements by equations :

The perimeter of a rectangle is 40 metres and

its length exceeds 5 times of its breadth by 2 metres.

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135. Express the following statements by equations :

While purchasing a bicycle, 500/- was paid in cash and the remaining amount was paid in four equal instalment. A total of 900/- is thus paid.

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136. Express the following statements by equations :

The sum of the degree measures of the three angles of a triangle is 180°. The measure of the 2nd angle is twice that of the 1st and exceeds the thrid angle by 40°.

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137. Express the following statements by equations :

The present age of a man is 37 years and that of his son is 7 years. After x years, the man's age will be 3 times his son's age.

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138. Express the following statements by equations :

A's age is thrice of B's age when B's age will double, the sum of their ages would be 36 years.

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139. Express the following statements by equations :

The sum of Rs 1200 and six times the monthly expenditure of a businessman is Rs. 9000.

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140. When a number is multiplied by 3 and then added to 4, 31 is obtained Express this as one equation.

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141. Your money bag contains Rs. 5 , this together with the money in Rahim's money bag amounts to Rs. 12. Express the statements as an equation.

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142. The sum of two numbers is 78 and one number is double the other. From this statement form an equation.

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143. The sum of three consecutive even integers is 48. Express this by an equation.

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144. Solution of equational problems:

A number exceeds another by 4 and the sum of the two numbers is 64. Find them.

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145. Divide 78 into two numbers such that one of them is the double of the other.

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146. A number is three times of another number. If 7 is substracted from the greater, the smaller increases by 3. Find the numbers.

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147. The sum of three consecutive even numbers is 54. Find the numbers.

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148. Kripabar posesses coins worth Rs. 25.40. Some of these are 50 paise coins and the rest are 10 paise coins. What is the number of coins of each kind he possesses? It is given that the he has 8 more 10 paise coins than 50 paise coins.

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149. Of three consecutive (whole) numbers twice the least exceeds the greatest one by 23. Find the three numbers.

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150. A man spent Rs. 15.75 in purchasing some tickets worth 60 paise and 45 paise respectively. On counting it was found that there were 7 more 45 paise tickets than 60

paise tickets. Find the number of tickets of each kind.

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151. A number exceeds another number by 2.5 times.The smaller number exceeds 4 times of the greater number by 9. Find the two numbers.

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152. Divide Rs. 18,500 among A,B and C such that C gets Rs. 1500 more than B and A's share is twice of C's.

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153. Janhu is twice as old as Indra. Six years ago Janhu was four times as old as Indra. Find their present ages.

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154. The greater of two numbers exceeds the smaller by 8. Five times of the greater number exceeds 6 times of the smaller one by 20. Find the two numbers.

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155. The sum of the degree measures of the three angles of a triangle is 180. The measure of the 2nd angle exceeds that of the 1st by 8 and the measure of the 3rd angle is twice of

that of the 2nd. Find the measure of each angle.

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156. The distance between two cars is 456 km. If the two cars approach each other at the speed of 42 km. per hour and 34 km. per hour respectively, find after what time they will meet.

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157. The length of a rectangle is 3 metres more than twice of its breadth. If its perimeter be 72 metres, what is the length.

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158. A man invested a certain amount of money at 4% simple interest p.a and thrice of that amount at 5% p.a. for a year and earned Rs. 228. Find the two amounts invested by the man.

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159. The sum of the twice of the first and the thrice of the third of three consecutive integers is less than six times of the second by 20. Find the three numbers.

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160. At present a man is older than his son by 28 years. 12 years hence his age will be twice

the age of his son. What are their present ages?

161. After 8 years a boy's will be 3 times of what was his age 4 years ago. What is his present age?

162. A man advanced as loan a part of Rs. 2500 at 5% simple interest p.a. and the remaining amount at 6% simple interest p.a. , he earned Rs. 136 as interest in one year. What amounts did the man inverst in the two kinds?

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163. From Borjhar Air Port of Guwahati two aeroplanes took off simultaneously, one towards the east with the speed of 720 km.

per hour and the other towards the west with the speed of 880 km. per hour. After how many hours will the two aeroplanes be 4000 km. apart? Solve the problem by forming an equation.

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164. 3 is added to a certain number and this sum is multiplied by 2 , the number so obtained is equal to the difference of the first number and 9. What is that number?

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165. The perimeter of a rectangle is 200 cm. If its length is three times of its breadth, find the length and breadth of the rectangle.

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166. Each side of a square is increased in length by 2 cm. and thereby its new area exceeds its original area by $20cm^2$. Find the side of the square.

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167. A's savings exceeds three times of B's savings by Rs. 5. Again C's savings is two times A's savings. They three together saved Rs. 755. Find the savings of each.

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168. A rectangle is of dimensions 12 metres x 5 metres. If the second dimension of the

rectangle is increased by R metres and the first dimension is decreated by 2 metres, its area does not change. Find the value of R.

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