MATHS

BOOKS - RD SHARMA MATHS (HINGLISH)

RATIO, PROPORTION AND UNITARY METHOD

All Questions

1. Express the following in the language of ratios: The length of rectangle is double of its breadth. For preparing tea, 3 cups of water require 1 cup of milk. In a school, the work load of teaching four classes has been assigned to six teachers.

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2. Express the following ratios in the language of daily life: In an examination, the ratio of the

number of students passing the examination to the total number of students that appeared in the examination is 4:5. Water is formed by combining volumes of oxygen and hydrogen in the ratio 1:2. To dilute an acid, students were asked to mix acid and water in the ratio 2:3.

3. Express each of the following ratios in its simplest form: 150:400   (ii) 85:255 a dozen to a score   (iv) 27:57

4. Find the ratio of: 24:84   (ii)

200 grams to 4kg 36 minute to 2 hours   (iv)

250ml to 2 litres

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5. Sunita earned Rs. 40000 and paid Rs. 5000 as income tax. Find the ratio of: income tax to income,   (ii) income to income tax

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6. The number of boys and girls in a school are 480 and 384 respectively. Express the ratio of the number of boys to that of the girls in the simplest form.

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7. Find the ratio of the price of coffee to that of tea, when coffee costs Rs. 24 per 100gm and the tea costs Rs. 80 per kg.

8. Express each of the following in the language of ratios: In a class, the number of girls in the merit list of the board examination is two times that of boys. The number of students passing mathematics test is $\dfrac{2}{3}$ of the number that appeared.

9. Express the following ratios in language of daily life: The ratio of the number of bad pencils to that of good pencils produced in a factory is 1L. In India, the ratio of the number of villages to that of cities is about 2000:1.

10. Express each of the following ratios in its simplest form: 60:72   (ii)   324:144   (iii) 85:391   (iv) 186:403

11. Find the ratio of the following in the simplest form: 75 paise to Rs.   (ii) 35 minutes to 45 minutes 8 kig to 400 gm

(iv) 48 minutes to 1 hour 2 metres to 35cm

(vi) 35 minutes to 45 seconds 2 dozen to 3 scores   (viii) 3 weeks to 3 days 48 minutes to 2 hours 40 minutes 3m 5cm to 35cm.

12. Find the ratio of 3.2 metres to 56 metres

(ii)   10 metres to 25cm 25 paise to Rs. 60   (iv) 10 litres to 0.25 litre

13. Q.19 The number of boys and girls in a school are 1168 and 1095 respectively. The ratio of thenumber of boys to that of girls in the simplest form would be :(A) 16:15 (B) 15:16 (C) 73:4 (D) 4: 73

14. Avinash works as a lecturer and earns Rs. 12000 per month. His wife who is a doctor earns Rs. 15000 per month. Find the following ratios: Avinash's income to the income of his wife. Avinash's income to their total income.

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15. Of the 72 persons working in an office, 28 are men and the remaining are women. Find

the ratio of the number of: men to that of women. men to the total number of persons persons to that of women

16. The length of a steel tape for measurements of buildings is 10m and its width is 2.4cm. What is the ratio of its length to width?

17. An office opens at 9 a.m. and closes at 5 p.m. with a lunch interval of 30 minutes. What is the ratio of lunch interval to the total period in office?

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18. A bullock-cart travels 24kim in 3 hours and a train travels 120km in 2 hours. Find the ratio of their speeds.

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19. Margarette works in a factory and earns Rs 955 per month. She saves Rs 185 per month from her earnings. The ratio of her income to her expenditure is:

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20. Compare the ratios: $5 : 12 \; and \; 3 : 8$

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21. Compare the ratios: 7:6 and 24:9

22. Find two equivalent ratios of $6:15$.

23. Fill in the following blanks: $\dfrac{14}{21} = \dfrac{}{3} = \dfrac{6}{}$

24. Which ratio is larger in the following pairs?

3:4 or 9:16   (ii) 15:16 or 24: 25 4:7 or

5:8   (iv) 9:20 or 8:13 1:2 or 13:27

25. Give two equivalent ratios of $6:8$.

26. Fill in the following blanks: $\dfrac{12}{20} = \dfrac{}{5} = \dfrac{9}{}$

27. Are 40, 30, 60, 45 in proportion?

28. Are the numbers 5, 6, 20, 18 in proportion?

29. The first, third and fourth terms of a proportion are 12, 8 and 14 respectively.

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30. The first, second and fourth terms of a proportion are 6, 18 and 25 respectively.

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31. If $18,\ x,\ x,\ 50$ are in proportion, find the value of $x.$

32. Find the value of $x,$ if $x:65:3$

33. Find the mean proportional between 9 and 25.

34. If 3, x, 12 are in continued proportion, find the value of x.

35. If 25, 35, x are in continued proportion, find the value of x

36. Find which of the following are in proportions (i)18, 16, 6, 12 (ii)6, 2, 4, 3

37. The ratio of the length of a school ground to its width is 5:2. Find the length if the width of the ground is 50m.

38. In a school library, the ratio of mathematics books to Science books is the same as the ratio of Science books to Hindi books. If there are 450 books in Science and 300 books in Hindi, find the number of books in Mathematics.

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39. Which of the following statements are true? $16 : 24 = 20 : 30$ (ii) $21 : 6 = 35 : 10$

$12:18 = 28:12$ (iv) $51:58 = 85:102$

$40\ men : 200\ men = Rs.5 : Rs.25$

$99\ kg : 45\ kg = Rs.44 : Rs.20$

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40. Find which of the following are in proportion: 8, 16, 6; 12 (ii) 6, 2, 4, 3

(iii) 150, 250, 200, 300

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41. Find x in the following proportions:

$x : 6 = 55 : 11$ (ii) $18 : x = 27 : 3$ (iii)

$7 : 14 = 15 : x$ (iv) $16 : 18 = x : 96$

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42. Find x in the following proportion:

$x : 6 = 55 : 11$

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43. Find the other three proportions involving terms of each of the following: $45:30 = 24:16$ (ii) $12:18 = 14:21$

44. If $4, \ x, \ 9$ are in continued proportion, find the value of x.

45. If in a proportion, the first, second and fourth terms are 32, 112 and 217 respectively, find the third term.

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46. Show that the following numbers are in continued proportion: 36, 90, 225

   (ii) 48, 60 75 (iii) 16, 84, 441

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47. The ratio of the length of a school ground to its width is 5 : 2. Find its length if the width is 40 metres.

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48. The ratio of the sale of eggs on a Sunday to that of the whole week of a grocery shop was 2:9. If the total sale of eggs in the same week was Rs. 360, find the sale of eggs on Sunday.

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49. The ratio of copper and zinc in an alloy is 9:7. If the weight of zinc in the alloy is 9.8kg, find the weight of copper in the alloy.

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50. The ratio of the income to the expenditure of a family is $7:6$. Find the saving if the income is Rs 1400.

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51. The ratio of storybooks in a library to other books is 1:7. The total number of story books is 800. Find the total number of books in the library.

52. The cost of 30 metres of polyster cloth is Rs. 450. Find the cost of 16 metres of cloth.

53. A worker is paid Rs. 162.50 for 5 days. What should be paid to him for 28 days?

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54. An aeroplane flies 1000 km in 5 hours. How far does it travel in 3 hours?

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55. A woman worker earns Rs. 18000 in 15 months. How much does she earn in 7 months? In how many months will she earn Rs. 30000?

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56. A car travels 165km in 3 hours How long will it take to travel 440 km? How far will it travel in $6\dfrac{1}{2}$ hours?

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57. The weight of 45 folding chairs is 18 kg. How many chairs can be loaded on a truck having a capacity of carrying 4000 kg load?

58. The weight of 72 books is 9kg. What is the weight of 80 such books? How many such books weigh 6 kg?

59. If 25 bags of wheat each weighing 40 kg cost Rs. 2750, then the cost of 35 bags of wheat, if each bag weighs 50 kg is

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60. The price of 3 metres of cloth is Rs. 79.50. Find the price of 15 metres of such cloth.

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61. The cost of 17 chairs is Rs. 9605. Find the number of chairs that can be purchased in Rs. 56500.

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62. Three ferryloads are needed to carry 150 people across a river. How many people will be carried on 4 ferryloads?

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63. Three ferryloads are needed to carry 150 people across a river. How many people will be carried on 4 ferryloads?

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64. If 9kg of rice costs Rs. 120.60, what will 50kg of such a quality of rice cost?

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65. A train runs 200 kilometres in 5 hours. How many kilometres does it run in 7 hours?

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66. 10 boys can dig a pitch in 12 hours. How long will 8 boys take to do it?

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67. A man can work 8 hours daily and finishes a work in 12 days. If he works 6 hrs daily, in how many days will the same work be finished?

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68. Fifteen post cards cost Rs 2.25. What will be the cost of 36 post cards? How many postcards can we buy in Rs 45?

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69. A rail journey of 75 km costs Rs 215. How much will a journey of 120 km cost?

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70. If the sales tax on a purchase with Rs. 60 is Rs. 4.20. what will be the sales tax on the purchase worth Rs. 150?

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71. The cost of 17 chairs is Rs. 19210. Find the number of such chairs that can be purchased in Rs. 113000?

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72. A car travels 165 km in 3 hours. How long will it take to travel 440 km? How far will it travel in 7 hours?

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73. 2 dozens of oranges cost Rs. 60. Find the cost of 120 similar oranges?

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74. A family of 4 members consumes 6 kg of sugar in a month. What will be the monthly consumption of sugar, if the number of family members becomes 6?

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75. The weight of 45 folding chairs is 18kg. How many such chairs can be loaded on a truck having a capacity of carrying 4000 kg load?

76. A ratio equivalent to 2:3 is 4:3   (b) 2:6   (c) 6:9   (d) 10:9

77. The angles of a triangle are in the ratio 1:2:3. The measure of the largest angle is: 30^0 (b) 60^0 (c) 90^0 (d) 120^0

78. The sides of a triangle are in the ratio 2:3:5. If its perimeter is 100cm, the length of its smallest side is: 2cm (b) 20cm (c) 3cm (d) 5cm

79. Two numbers are in the ratio 7:9. If the sum of the numbers is 112, then the larger number is (a) 63   (b) 42   (c) 49   (d) 72

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80. The ratio 384:480 in its simplest form is (a) 3:5   (b) 5:4   (c) 4:5   (d) 2:5

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81. If A, B, C , divide Rs. 1200 in the ratio 2:3:5, then Bs share is Rs. 240 (b) 600 (c) 380 (d) 360

82. If a bus travels 126km in 3 hours and a train travels 315km in 5 hours, then the ratio of their speeds is: (a) 2:5 (b) 2:3 (c) 5:2 (d) 25:6

83. The ratio of male and female employees in a multinational company is 5:3. If there are 115 male employees in the company, then the number of female employees is 96   (b) 52   (c) 69   (d) 66

84. Length and width of a field are in the ratio 5:3. If the width of a field is 42m, then its length is 50m   (b) 70m   (c) 80m   (d) 100m

85. If $57 : x = 51 : 85,$ then the value of x is: 95

(b) 76 (c) 114 (d) None of these

86. The ratio of boys and girls in a school is 12:5. If there are 840 girls in the school, then the number of boys is 1190 (b) 2380 (c) 2856 (d) 2142

87. If $4, \ a, \ a, \ 36$ are in proportion, then $a =$

24 (b) 12 (c) 3 (d) 24

88. If $5 : 430 : x,$ then the value of x is 24 (b) 12 (c) $\dfrac{3}{2}$ (d) 6

89. If a, b, c, d are in proportion, then (a) $ab = cd$ (b) $ac = bd$ $ad = bc$ (d) None of these

90. If a, b, c are in proportion, then (a) $a^2 = bc$ (b) $b^2 = ac$ (c) $c^2 = ab$ (d) None of these

91. If the cost of 5 bars of a soap is Rs. 30, then the cost of one dozen bars is: (a) Rs. 60 (b) Rs. 120 (c) Rs. 72 (d) Rs. 140

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92. 12 men can finish a piece of work in 25 days. The number of days in which the same piece of work can be done by 20 men, is (a) 10 days (b) 12 days (c) 15 days (d) 14 days

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93. If the cost of 25 packets of 12 pencils each is RS. 750, then the cost of 30 packets of 8 pencils each is: (a) Rs. 600   (b) Rs. 720 (c) 640   (d) None of these

94. If a, b, c are in proportion, then (a) $a:b::b:c$ (b) $a:b::c:a$ c) $a:b::c:b$ (d) $a:c::b:c$

95. If $a = 2b$, then $a : b = $ 2:1 (b) 1:2 (c) 3:4 (d)

4:3

96. If $4 : 3 = x^2 : 12$, then the value of $x \ (x > 0)$. 16 (b) 4 (c) 9 (d) 3

97. If $x:y = 2:3$ and $y:z = 2:3,$ then $x:z =$

2:3 (b) 3:4 (c) 5:7 (d) 4:9

98. If $80:60 = x:12,$ then $x =$ 16 (b) 7 (c) 24 (d) 50

99. Two numbers are in the ratio 3:5 and their sum is 96. The larger number is 36   (b) 42   (c) 60   (d) 70

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100. If $x : y = 1 : 1$, $then$ $\dfrac{3x + 4y}{5x + 6y} =$ (a) $\dfrac{7}{11}$ (b) $\dfrac{17}{11}$ (c) $\dfrac{17}{23}$ (d) $\dfrac{4}{5}$

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101. If six men can do a piece of work in 6 days, then 3 men can do same work in 10 days

(b) 12 days (c) 15 days (d) 18 days

102. If $4:5x:45,$ then $x = $ 54 (b) 60 (c) 36 (d) 30

103. If 343 is the third proportional of $a \; and \; b$, where $a:b = 1:7,$ then the value of $a + b$ is

14 (b) 24 (c) 56 (d) 63

104. The first three terms of a proportion are 12, 21 and 8 respectively. Then 4th term is

18 (b) 16 (c) 14 (d) 20

105. If $a:b = 2:5$, . fid the value of $\dfrac{3a + 2b}{4a + b}$

106. The mean proportional of $a \ and \ b$ is 10 and the value of a is four times the value of b. the value of $a + b(a > 0, b > 0)$ is (a)20 (b) 25 (c)101 (d) 29

107. A given quantity of rice is sufficient for 60 persons for 3 days. How many days would the rice last for 18 persons?

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108. 12 men can reap a field in 25 days. In how many days can 20 mean reap the same field?

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109. Shikah and Aarushi are sister. The ratio of their ages is 3:4. Their percents give them Rs. 1400 to share in the ratio of their ages. How much does each of them receive?

110. The ratio of copper and zinc in an alloy is $5:3$. If the weight of the copper in the alloy is 30. 5 grams, find the weight of zinc in the alloy.

111. Divide Rs. 3450 among A, B and C in the ratio 3:5:7

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112. 40 men can finish a piece of work in 26 days. How many men will be needed to finish it in 16 days?

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113. Tropical fruit juice is mixed from mango, papaya and orange juice in the ratio 3:1:4. Aarushi has 400ml of orange juice. If she uses if all: (i) How much mango and papaya will he need? (ii) How much tropical fruit juice will he make altogheter?

114. If 48 boxes contain 6000 pens, how many such boxes will be needed for 1875 pens?

115. If 1, 2, 3 and x are in proportion, then x $=$ ....

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116. Ratio of Rs. 2 and 50 paise and Rs. 3 and 75 paise is ....

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117. Mean proportion of 2 and 8 is ....

118. If $a:b = 4:5 \ and \ b:c = 2:3,$ then

$a:c =$ ....

119. If $2x = 5y,$ then $x:y =$ ....