

MATHS

BOOKS - NCERT EXEMPLAR

RATIO AND PROPORTION

Solved Examples

1. The ratio of Rs 8 to 80 paise is

A. 1 : 10

B. 10: 1

C. 1: 1

D. 100: 1

Answer: B



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2. The length and breadth of a steel tape are 10m and 2.4cm, respectively. The ratio of the length to the breadth is

A. $5:1.2$

B. $25:6$

C. $625:6$

D. $1250:3$

Answer: D



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3. Find the missing number in the box in the following proportion:

$$\square : 8 :: 12 : 32$$



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4. State whether the given statements are true or false:

$$12:18 = 28:56$$



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5. State whether the given statements are true or false:

$$25 \text{ persons} : 130 \text{ persons} = 15 \text{ kg} : 78 \text{ kg}$$



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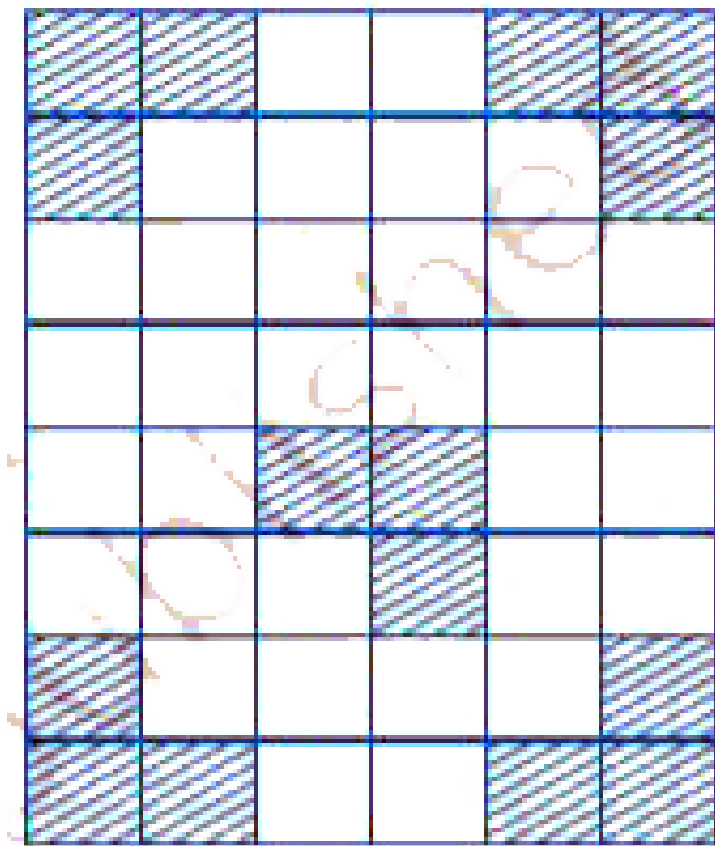
6. Fill in the blanks :

If two ratios are _____, then they are in proportion



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7. Find the ratio of the shaded portion to the unshaded portion in Fig. 8.1



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8. Income of Rahim is Rs 12000 per month and that of Ami is Rs 191520 per annum. If the

monthly expenditure of each of them is Rs 9960 per month find the ratio of their monthly savings



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9. 20 tons of iron costs Rs 600000. Find the cost of 560kg of iron.



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Exercise

1. The ratio of 8 books to 20 books is

A. 2: 5

B. 5: 2

C. 4: 5

D. 5: 4

Answer: A



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2. The ratio of the number of sides of a square to the number of edges of a cube is

A. 1 : 2

B. 3 : 2

C. 4 : 1

D. 1 : 3

Answer: D



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3. A picture is 60cm wide and 1.8m long. The ratio of its width to its perimeter in lowest form is

A. 1 : 2

B. 1 : 3

C. 1 : 4

D. 1 : 8

Answer:



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4. Neelam's annual income is Rs. 288000. Her annual savings amount to Rs. 36000. The ratio of her savings to her expenditure is

A. 1 : 8

B. 1 : 7

C. 1 : 6

D. 1 : 5

Answer:



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5. Mathematics textbook for Class VI has 320 pages. The chapter 'symmetry runs from page 261 to page 272. The ratio of the number of pages of this chapter to the total number of pages of the book is:

A. 11 : 320

B. 3 : 40

C. 3 : 80

D. 272 : 320

Answer:



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6. In a box, the ratio of red marbles to blue marbles is 7:4. Which of the following could be the total number of marbles in the box?

A. 18

B. 19

C. 21

D. 22

Answer:



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7. On a shelf, books with green cover and that with brown cover are in the ratio 2:3. If there are 18 books with green cover, then the number of books with brown cover is

A. 12

B. 24

C. 27

D. 36

Answer: C



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8. The greatest ratio among the ratios
 $2:3$, $5:8$, $75:121$ and $40:25$ is -

A. $2:3$

B. $5:8$

C. $75:121$

D. $40:25$

Answer:



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9. There are 'b' boys and 'g' girls in a class. The ratio of the number of boys to the total number of students in the class is:

A. $\frac{b}{b + g}$

B. $\frac{g}{b + g}$

C. $\frac{b}{g}$

D. $\frac{b + g}{b}$

Answer:



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10. If a bus travels 160 km in 4 hours and a train travels 320km in 5 hours at uniform speeds, then the ratio of the distances travelled by them in one hour is

A. 1 : 2

B. 4 : 5

C. 5 : 8

D. 8 : 5

Answer: A



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11. $\frac{3}{5} = \frac{\square}{20}$



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12. $\frac{\square}{18} = \frac{2}{9}$



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13. $\frac{8}{\square} = \frac{3.2}{\square}$



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14. $\frac{\square}{45} = \frac{16}{40} = \frac{24}{\square}$



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15. Find the missing number $\frac{16}{36} = \frac{\square}{63}$



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16. The marked price of a table is Rs 625 and its sale price is Rs 500. What is the ratio of the sale price to the marked price?



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17. Which pair of ratios are equal? And why?

$$\frac{2}{3}, \frac{4}{6}$$



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18. Which pair of ratios are equal? And why?

$$\frac{8}{4}, \frac{2}{1}$$



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19. Which pair of ratios are equal? And why?

$$\frac{4}{5}, \frac{12}{20}$$



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20. Which ratio is larger 10 : 21 or 21 : 93?



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21. Reshma prepared 18kg of Burfi by mixing Khoya with sugar in the ratio of 7 : 2. How much Khoya did she use?



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22. A line segment 56cm long is to be divided into two parts in the ratio of 2 : 5. Find the length of each part.



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23. The number of milk teeth in human beings is 20 and the number of permanent teeth is 32. Find the ratio of the number of milk teeth to the number of permanent teeth.



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24. Sex ratio is defined as the number of females per 1000 males in the population. Find

the sex ratio if there are 3732 females per 4000 males in a town.



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25. In a year, Ravi earns Rs 360000 and paid Rs 24000 as income tax. Find the ratio of his income to income tax



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26. In a year, Ravi earns Rs 360000 and paid Rs 24000 as income tax. Find the ratio of his income tax to income after paying income tax



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27. Ramesh earns Rs 28000 per month. His wife Rama earns Rs 36000 per month. Find the ratio of Ramesh's earnings to their total earnings



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28. Ramesh earns Rs 28000 per month. His wife Rama earns Rs 36000 per month. Find the ratio of Rama's earnings to their total earnings.



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29. Of the 288 persons working in a company, 112 are men and the remaining are women. Find the ratio of the number of men to that of women



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30. Of the 288 persons working in a company, 112 are men and the remaining are women. Find the ratio of the number of men to the total number of persons.



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31. Of the 288 persons working in a company, 112 are men and the remaining are women.

Find the ratio of the number of women to the total number of persons.



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32. A rectangular sheet of paper is of length 1.2m and width 21cm. Find the ratio of width of the paper to its length.



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33. A scooter travels 120km in 3 hours and a train travels 120km in 2 hours.

Find the ratio of their speeds



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34. An office opens at 9 a.m. and closes at 5.30 p.m. with a lunch break of 30 minutes. What is the ratio of lunch break to the total period in the office?



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35. The shadow of a 3m long stick is 4m long.

At the same time of the day, if the shadow of a flagstaff is 24m long, how tall is the flagstaff?



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36. A recipe calls for 1 cup of milk for every $2\frac{1}{2}$ cups of flour to make a cake that would feed 6 persons. How many cups of both flour and milk will be needed to make a similar cake for 8 people?



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37. In a school, the ratio of the number of large classrooms to small classrooms is 3:4. If the number of small rooms is 20, then find the number of large rooms.



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38. Samira sells newspapers at Janpath crossing daily. On a particular day, she had 312

newspapers out of which 216 are in English and remaining in Hindi. Find the ratio of (a) the number of English newspapers to the number of Hindi newspaper. (b) the number of Hindi newspapers to the total number of newspapers



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39. Samira sells newspapers at Janpath crossing daily. On a particular day, she had 312 newspapers out of which 216 are in English

and remaining in Hindi. Find the ratio of the number of Hindi newspapers to the total number of newspapers.



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40. The students of a school belong to different religious backgrounds. The number of Hindu students is 288, the number of Muslim students is 252, the number of Sikh students is 144 and the number of Christian students is 72. Find the ratio of

the number of Hindu students to the number of Christian students.



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41. The students of a school belong to different religious backgrounds. The number of Hindu students is 288, the number of Muslim students is 252, the number of Sikh students is 144 and the number of Christian students is 72. Find the ratio of

the number of Muslim students to the total number of students.



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42. When Chinmay visited Chowpati at Mumbai on a holiday, he observed that the ratio of North Indian food stalls to South Indian food stalls is 5:4. If the total number of food stalls is 117, find the number of each type of food stalls.



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43. At the parking stand of Ramleela ground, Kartik counted that there are 115 cycles, 75 scooters and 45 bikes. Find the ratio of the number of cycles to the total number of vehicles.



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44. A train takes 2 hours to travel from Ajmer to Jaipur, which are 130km apart. How much time will it take to travel from Delhi to Bhopal

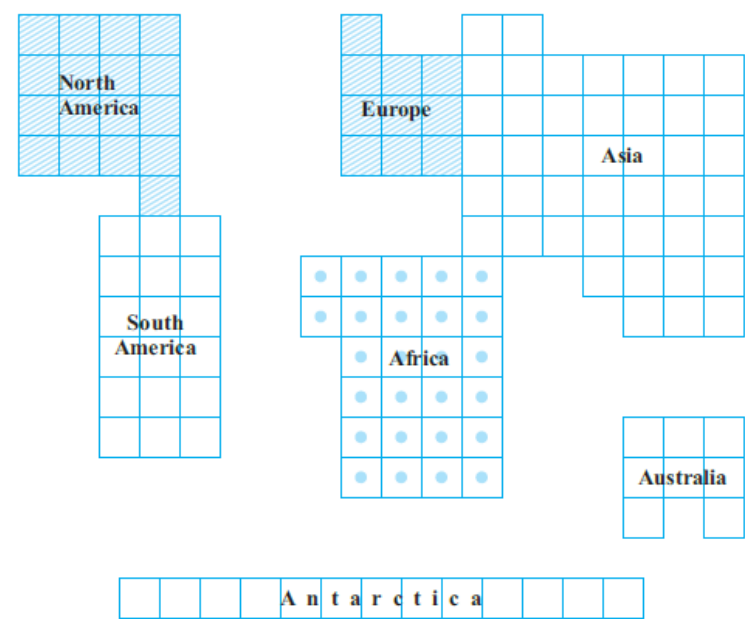
which are 780km apart if the train is travelling at the uniform speed?



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45. In Fig. 8.4, the comparative areas of the continents are given: What is the ratio of the

areas of Australia to Asia



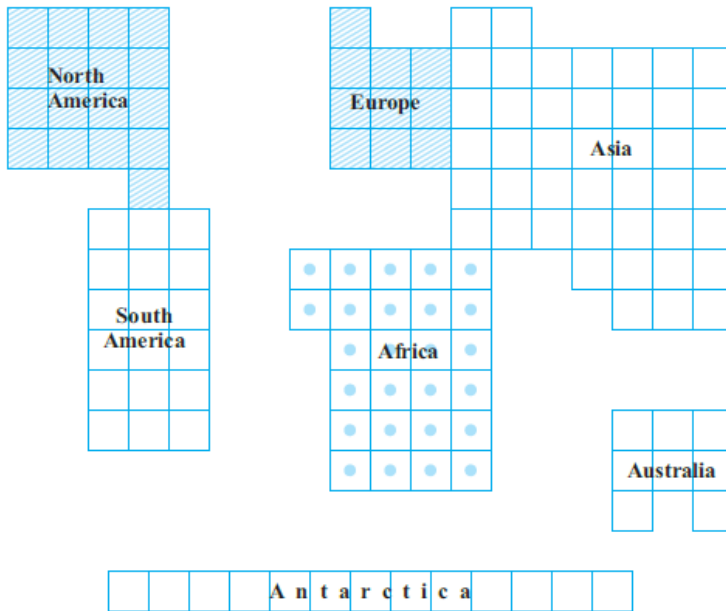
(Comparative areas of the continents)

Fig. 8.4

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46. In Fig. 8.4, the comparative areas of the continents are given: What is the ratio of the

areas of Antarctica to Combined area of North America and South America



(Comparative areas of the continents)

Fig. 8.4



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47. A tea merchant blends two varieties of tea costing her Rs 234 and Rs 130 per kg in the ratio of their costs. If the weight of the mixture is 84kg, then find the weight of each variety of tea.



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48. An alloy contains only zinc and copper and they are in the ratio of 7:9. If the weight of the

alloy is 8kg, then find the weight of copper in the alloy



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49. In the following figure, each division represents 1 cm. Express numerically the ratios of the following distance : (1)

$AC : AF$ (ii) $AG : AD$ (iii) $BF : AI$ (iv) $CE : DI$



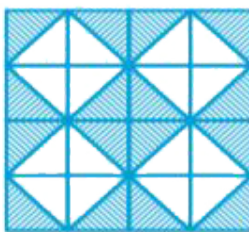
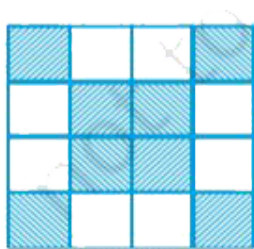
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50. Find two numbers whose sum is 100 and whose ratio is 9 :16.



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51. In Fig. 8.6 (i) and Fig. 8.6 (ii), find the ratio of the area of the shaded portion to that of the whole figure:



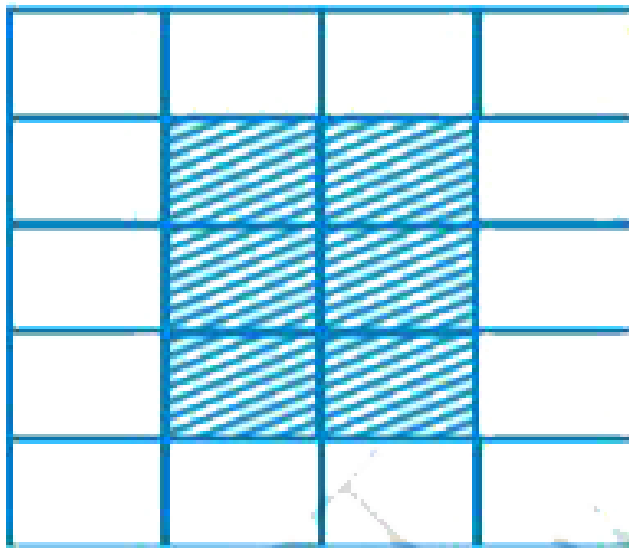
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52. A typist has to type a manuscript of 40 pages. She has typed 30 pages of the manuscript. What is the ratio of the number of pages typed to the number of pages left?



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53. In a floral design made from tiles each of dimensions 40cm by 60cm (See Fig. 8.7), find the ratios of:



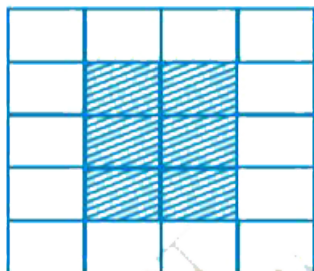
the perimeter of shaded portion to the perimeter of the whole design.



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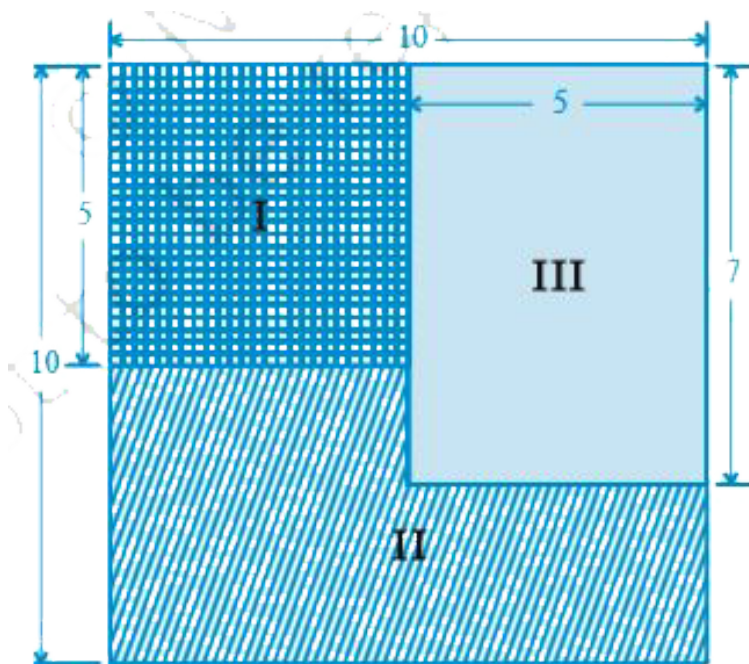
54. In a floral design made from tiles each of dimensions 40cm by 60cm find the ratio of : a).

Perimeter of shaded portion. b). Area of shaded portion.



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55. In Fig. 8.8, what is the ratio of the areas of

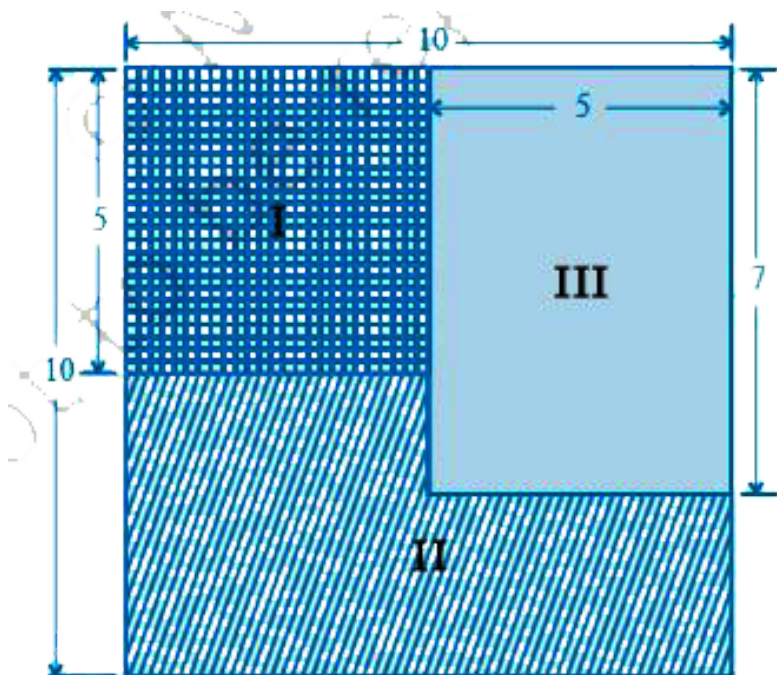


shaded portion I to shaded portion II ?



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56. In Fig. 8.8, what is the ratio of the areas of

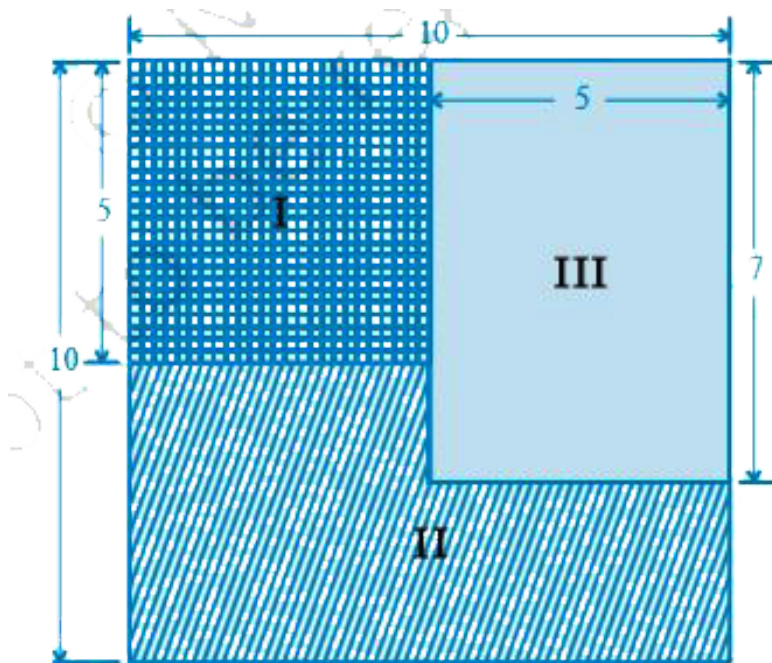


shaded portion II to shaded portion III?



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57. In Fig. 8.8, what is the ratio of the areas of



shaded portions I and II taken together and
shaded portion III?



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58. A car can travel 240km in 15 litres of petrol.
How much distance will it travel in 25 litres of petrol?



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59. Bachhu Manjhi earns Rs 24000 in 8 months. At this rate,
how much does he earn in one year?



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60. Bachhu Manjhi earns Rs 24000 in 8 months. At this rate, in how many months does he earn Rs 42000?



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61. The yield of wheat from 8 hectares of land is 360 quintals. Find the number of hectares of land required for a yield of 540 quintals?



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62. The earth rotates 360° about its axis in about 24 hours. By how much degree will it rotate in 2 hours?



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63. Shivangi is suffering from anaemia as haemoglobin level in her blood is lower than the normal range. Doctor advised her to take one iron tablet two times a day. If the cost of 10 tablets is Rs 17, then what amount will she

be required to pay for her medical bill for 15 days?



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64. The quarterly school fee in Kendriya Vidyalaya for Class VI is Rs 540. What will be the fee for seven months?



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65. In an election, the votes cast for two of the candidates were in the ratio 5 : 7. If the successful candidate received 20734 votes, how many votes did his opponent receive?



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66. A metal pipe 3 metre long was found to weigh 7.6kg. What would be the weight of the same kind of 7.8m long pipe?



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67. A recipe for raspberry jelly calls for 5 cups of raspberry juice and $2\frac{1}{2}$ cups of sugar. Find the amount of sugar needed for 6 cups of the juice?



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68. A farmer planted 1890 tomato plants in a field in rows each having 63 plants. A certain type of worm destroyed 18 plants in each row.

How many plants did the worm destroy in the whole field?



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69. Length and breadth of the floor of a room are 5m and 3m, respectively. Forty tiles. Each with area $\frac{1}{16}m^2$ are used to cover the floor partially. Find the ratio of the tiled and the non tiled portion of the floor.



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70. A carpenter had a board which measured $3m \times 2m$. She cut out a rectangular piece of $250cm \times 90cm$.What is the ratio of the area of cut out piece and the remaining piece ?



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Exercise In Questions 16 To 34 State Whether The Given Statements Are True T Or False F

1. BOTH ratios are equal or not $\frac{3}{8} = \frac{15}{14}$



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2. Both ratios are same or different $4 : 7 = 20 : 35$



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3. Both ratios are same or different $0.2 : 5 = 2 : 0.5$



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4. Both ratios are same or different

$$3:33 = 33:333$$



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5. $15\text{m} : 40\text{m} = 35\text{m} : 65\text{m}$



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6. State True or False:

$$27\text{cm}^2 : 57\text{cm}^2 = 18\text{cm} : 38\text{cm}$$



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7. State True or False:

5kg : 7.5 kg = Rs 7.5: Rs 5



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8. Both ratios are same or different 12 hours :

30 hours = 8km : 20km



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9. The ratio of 10kg to 100kg is 1:10



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10. The ratio of 150cm to 1metre is 1:1.5.



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11. $25\text{kg} : 20\text{g} = 50\text{kg} : 40\text{g}$



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12. Tell whether the statement is true or false:

The ratio of 1 hour to one day is 1:1.



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13. The ratio 4 : 16 is in its lowest form.



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14. The ratio 5 : 4 is different from the ratio 4 : 5.





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15. State True or False

A ratio will always be more than 1.



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16. State True or False:

A ratio can be equal to 1.



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17. State True or False:

If $b : a = c : d$, then a, b, c, d are in proportion.



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18. State True or False

The two terms of a ratio can be in two different units.



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Exercise In Questions 16 To 34 State Whether The Given Statements Are True T Or False F

1. $20 \text{ g} : 100 \text{ g} = 1 \text{ metre} : 500 \text{ cm}$



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Exercise In Questions 35 To 46 Fill In The Blanks To Make The Statements True

1. A ratio is a form of comparison by _____.



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2. $20\text{m} : 70\text{m} = \text{Rs } 8 : \text{Rs } \underline{\hspace{2cm}}$.



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3. There is a number in the box \square such that ,
 \square 24, 9, 12 are in proportion. The number in
the box is $\underline{\hspace{2cm}}$.



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4. If two ratios are equal, then they are in $\underline{\hspace{2cm}}$.



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5. Using figure 8.2, the ratio of the area of the shaded portion to that of the whole figure is _____.



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6. Sleeping time of a python in a 24 hour clock is represented by the shaded portion in Fig. 8.3.



The ratio of sleeping time to awaking time is _____.



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7. A ratio expressed in lowest form has no common factor other than _____ in its terms.



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8. To find the ratio of two quantities, they must be expressed in ____ units.



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9. Ratio of 5 paise to 25 paise is the same as the ratio of 20 paise to ____



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10. Saturn and Jupiter take 9 hours 56 minutes and 10 hours 40 minutes, respectively for one spin on their axes. The ratio of the time taken by Saturn and Jupiter in lowest form is _____.



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11. 10g of caustic soda dissolved in 100mL of water makes a solution of caustic soda. Amount of caustic soda needed for 1 litre of

water to make the same type of solution is

_____.



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