



# MATHS

## NCERT - NCERT

## MATHEMATICS(ENGLISH)

## RATIO AND PROPORTION

### Exercise 12 2

1. Write True ( T ) or False ( F ) against each of the following statements : (a)  $16 : 24 :: 20 : 30$

(b)  $21 : 6 :: 35 : 10$  (c)  $12 : 18 :: 28 : 12$  (d)  $8 : 9 ::$

$24 : 27$  (e)  $5.2 : 3.9 :: 3 : 4$  (f)  $0.9 : 0.36 :: 10 :$

4



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**2. Are the following statements true?**

(a) 40 persons : 200 persons = Rs 15 : Rs 75

(b) 7.5 litres : 15 litres = 5 kg : 10 kg

(c) 99 kg : 45 kg = Rs 44 : Rs 20

(d) 32 m : 64 m = 6 sec : 12 sec

(e) 45 km : 60 km = 12 hours : 15 hours



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3. Determine if the following ratios form a proportion. Also, write the middle terms and extreme terms where the ratios form a proportion.

(a) 25 cm : 1 m and Rs 40 : Rs 160

(b) 39 litres : 65 litres and 6 bottles : 10 bottles

(c) 2 kg : 80 kg and 25 g : 625 g

(d) 200 ml : 2.5 litre and Rs 4 : Rs 50



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4. Determine if the following are in proportion.

(a) 15, 45, 40, 120 (b) 33, 121, 9, 96 (c) 24, 28, 36,

48 (d) 32, 48, 70, 210 (e) 4, 6, 8, 12 (f) 33, 44, 75,

100



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## Exercise 12 3

1. A truck requires 108 litres of diesel for covering a distance of 594 km. How much

diesel will be required by the truck to cover a distance of 1650 km?



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2. Cost of 5 kg of wheat is Rs 30.50. (a) What will be the cost of 8 kg of wheat? (b) What quantity of wheat can be purchased in Rs 61?



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3. The weight of 72 books is 9 kg. What is the weight of 40 such books?



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4. Raju purchases 10 pens for Rs 150 and Manish buys 7 pens for Rs 84. Can you say who got the pens cheaper?



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5. Anish made 42 runs in 6 overs and Anup made 63 runs in 7 overs. Who made more runs per over?



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6. Cost of 4 dozens bananas is Rs 60. How many bananas can be purchased for Rs 12.50?



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7. Shaina pays Rs 7500 as rent for 3 months. How much does she has to pay for a whole year, if the rent per month remains same?



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8. The temperature dropped 15 degree celsius in the last 30 days. If the rate of temperature drop remains the same, how many degrees will the temperature drop in the next ten days



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**9.** If it has rained 276 mm in the last 3 days, how many cm of rain will fall in one full week (7 days)? Assume that the rain continues to fall at the same rate.



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**10.** Ekta earns Rs 1500 in 10 days. How much will she earn in 30 days?



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**11.** If the cost of 7 m of cloth is Rs 294, find the cost of 5 m of cloth.



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## Solved Examples

**1.** Find the ratio of 90 cm to 1.5 m.



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2. A car travels 90 km in  $(2)\frac{1}{2}$  hours. (a) How much time is required to cover 30 km with the same speed? (b) Find the distance covered in 2 hours with the same speed.



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3. Cost of 105 envelopes is Rs 35. How many envelopes can be purchased for Rs 10?



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4. If the cost of 6 cans of juice is Rs 210, then what will be the cost of 4 cans of juice?



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5. Do the ratios 15 cm to 2 m and 10 sec to 3 minutes form a proportion?



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6. If the cost of a dozen soaps is Rs 153.60, what will be the cost of 15 such soaps?



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7. A motorbike travels 220 km in 5 litres of petrol. How much distance will it cover in 1.5 litres of petrol?



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**8.** Length and breadth of a rectangular field are 50 m and 15 m respectively. Find the ratio of the length to the breadth of the field.



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**9.** Give two equivalent ratios of 6 : 4.



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10. Fill in the missing numbers :  $14/21 = \square/3 = 6/\square$



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11. There are 45 persons working in an office. If the number of females is 25 and the remaining are males, find the ratio of : (a) The number of females to number of males. (b) The number of males to number of females.



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**12.** Ratio of distance of the school from Mary's home to the distance of the school from John's home is  $2 : 1$ . (a) Who lives nearer to the school? (b) Complete the following table which shows some possible distances that Mary and John could live from the school. If the ratio of distance of Mary's home to the distance of Kalam's home from school is  $1 : 2$ , then who lives nearer to the school?



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**13.** Divide Rs 60 in the ratio 1:2 between Kriti and Kiran



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**14.** Are the ratios  $25\text{ g} : 30\text{ g}$  and  $40\text{ g} : 48\text{ g}$  in proportion?



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**15.** Are 30, 40, 45 and 60 in proportion?



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## Exercise 12 1

1. Present age of father is 42 years and that of his son is 14. Find the ratio of (a) Present age of father to the present age of son. (b) Age of the father to the age of son, when son was 12 years old. (c) Age of father after 10 years to the age of son after 10 years. (d) Age of father to the age of son when father was 30 years old.



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2. Divide 20 pens between Sheela and Sangeeta in the ratio of 3 : 2.



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3. Cost of a dozen pens is Rs 180 and cost of 8 ball pens is Rs 56. Find the ratio of the cost of a pen to the cost of a ball pen.



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**4. Consider the statement: Ratio of breadth and length of a hall is 2 : 5. Complete the following table that shows some possible breadths and lengths of the hall.**

**Breadth of the hall(in metres) 10 ? 40**

**Length of the hall(in metres) 25 50 ?**



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**5. In a college, out of 4320 students, 2300 are girls. Find the ratio of(a) Number of girls to**

the total number of students.(b) Number of boys to the number of girls(c) Number of boys to the total number of students



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6. Out of 1800 students in a school, 750 opted basketball, 800 opted cricket and remaining opted table tennis. If a student can opt only one game, find the ratio of(a) Number of students who opted basketball to the number of students who opted table tennis.(b)

Number of students who opted cricket to the number of students opting basketball.(c)

Number of students who opted basketball to the total number of students.



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7. Fill in the following blanks :  $15/18 = \square/6 = 10/$

$\square = \square/30$  [Are these equivalent ratios?]



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**8. Distances travelled by Hamid and Akhtar in an hour are 9 km and 12 km. Find the ratio of speed of Hamid to the speed of Akhtar.**



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**9. Mother wants to divide Rs 36 between her daughters Shreya and Bhoomika in the ratio of their ages. If age of Shreya is 15 years and age of Bhoomika is 12 years, find how much Shreya and Bhoomika will get.**





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10. There are 20 girls and 15 boys in a class.(a)

What is the ratio of number of girls to the number of boys?(b) What is the ratio of number of girls to the total number of students in the class?



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11. See the figure and find the ratio of(a)

Number of triangles to the number of circles



inside the rectangle.(b) Number of squares to all the figures inside the rectangle.(c) Number of circles to all the figures inside the rectangle.



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12. Out of 30 students in a class, 6 like football, 12 like cricket and remaining like tennis. Find the ratio of

(a) Number of students liking football to number of students liking tennis.

**(b) Number of students liking cricket to total number of students**



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**13. Find the ratio of the following:**

**(a) 30 minutes to 1.5 hours**

**(b) 40 cm to 1.5 m**

**(c) 55 paise to Re 1**

**(d) 500 ml to 2 litres**



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**14. Find the ratio of the following :**

**(a) 81 to 108**

**(b) 98 to 63**

**(c) 33 km to 121 km**

**(d) 30 minutes to 45 minutes**



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**15. There are 102 teachers in a school of 3300 students. Find the ratio of the number of teachers to the number of students.**



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**16. In a year, Seema earns Rs 1,50,000 and saves Rs 50,000. Find the ratio of (a) Money that Seema earns to the money she saves. (b) Money that she saves to the money she spends**



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