

Ration and proportion

The main rule is 'Divide for one then times for all'.

Solved Example:

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| Find the missing number $8:5 = a:35$. This can be written as $\frac{8}{5} = \frac{a}{35}$ $\frac{8}{5} \times 35 = a$ $a = 56$ | Ratio : $a:b = c:d$ Means $\frac{a}{b} = \frac{c}{d}$ Or. $a \times d = b \times c$. Cross Multiplication |
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Exercise: 7

- What is 36 minutes as a fraction of 1 hour? _____
- Which of the following ratio is written in its simplest form? _____
a) 4:12, _____ b) 3:45, _____ c) 6:25 _____
- Divide £120 in the ratio of 2:3? _____
- £1500 in the ratio of 3:4:5? _____
- Divide 2m in the ratio of 2:3? _____
- Divide 1.5 L in the ratio of 1:2? _____
- Find the unit rate.
a) 18 cupcakes in 3 boxes =cupcakes per box
b) 25 pencils in 5 boxes =pens per box
- If seven choc-bars cost 98p, how much will 9 choc-bars cost? _____
- If ten books weigh 5kg, how much will 15 books weigh? _____
- What is the missing number from this ratio? $10:7 = [\quad]:35$
- What is the missing number from this ratio? $12:8 = [\quad]:2$
- Eve divided 24 sweets between her grandchildren in the ratio of their ages. If Kate is 7, Tom is 5, how many does Kate receive?

- A map has a scale of 1:25000. How much does 1cm on the map represent in real life?

14. Are these ratios equivalent?

8 amateurs : 14 professionals

4 amateurs : 7 professionals

15. Fiona and Todd are baking pies for a bake sale. Fiona baked 16 apple pies and 6 blueberry pies. Todd baked 19 apple pies and 4 blueberry pies. Who baked a higher ratio of apple pies to blueberry pies?

16. Do these ratios form a proportion?

$\frac{3}{4}$ and $\frac{15}{16}$

17. Do these ratios form a proportion?

4 old cars to 12 new cars

6 old cars to 18 new cars

18. Kenneth learned to sing a total of 14 pieces over the course of 14 weeks of voice lessons. How many weeks of lessons will Kenneth need before he will be able to sing a total of 44 pieces? Assume the relationship is directly proportional.

19. A researcher who was conducting a study caught, tagged, and released 25 opossums. Weeks later, the researcher caught a total of 520 opossums, of which 10 were tagged. To the nearest whole number, what is the best estimate for the opossum population?

20. Federico drew a scale drawing of a boarding school. The scale he used was 1 centimetre = 4 meters. If a building at the school is 13 centimetres in the drawing, how wide is the actual building?

21. Tony bought 69 kilograms of turnips and carrots. The turnips came in 9-kilogram bags and the carrots came in 6-kilogram bags. Tony bought 9 bags of vegetables. How many bags of each vegetable did he buy?

.....bags of turnips

.....bags of carrots

22. In a bag, there are **red** and **blue** cubes in the ratio **4 : 7**

I add **10 more red cubes** to the bag.

Now there are **red** and **blue** cubes in the ratio **6 : 7**

How many **blue** cubes are in the bag?
