

Division in a Given Ratio

Starter

1. (Review of last lesson)

A photocopier is set to reduce in the ratio 2 : 5, where the ratio means reduced : original.

- (a) What is the length of a reduced diagram if the length of the original is 4 cm?
(b) What length on an original will be reduced to 30 mm?

2. To make green paint, Bob mixed 4 litres of blue paint with 5 litres of yellow paint. Calculate
(a) how much yellow paint he would need if he had 15 litres of blue paint and
(b) how much yellow paint he would need if he wanted to make 54 litres of green paint.
Discuss the difference between the two calculations with your partner.

Notes

Success criteria – division in a given ratio

1. Add the component ratios to find the number of parts.
2. Divide the quantity by the number parts – this is how much 1 part is worth.
3. Multiply each component of the ratio by how much 1 part is worth.

E.g. 1 Divide the following amounts in the given ratios:

- (a) 48 m 5 : 7 (b) £42 2 : 5 (c) 65 km 2 : 3 : 8

Working: (a) $5 + 7 = 12$ parts
1 part is worth $\frac{48}{12} = 4$ m
 $4 \times 5 = 20$
 $4 \times 7 = 28$
20 m and 28 m

E.g. 2 Concentrated orange juice has to be diluted with water in the ratio 2 : 9 by volume. How many millilitres of concentrated juice are needed to make 2 litres of juice to drink? Give your answer to the nearest ml.

Working: 2 litres \equiv 2000 ml
 $2 + 9 = 11$ parts
1 part is worth $\frac{2000}{11}$ ml *leave as a fraction to avoid rounding error*
Juice needed = $\frac{11}{2000} \times 2 = 363.6 \approx 364$ ml (nearest ml)

E.g. 3 A bonus of £3000 is to be shared between three employees, Anna, Barbara and Cara in the ratio of their salaries. Given that their salaries are £12000, £17000 and £14000 respectively, how much more does Barbara get compared to Anna.

E.g. 4* A square and rectangle have the same area. the sides of the rectangle are in the ratio 4 : 1. Its perimeter is 200 cm. What is the length of the side of the square?

Video: [Division in a given ratio](#)

Exercise

p119 Ex 7.3 Qu 1-10

Summary

Division in a given ratio

1. Add the component ratios to find the number of parts.
2. Divide the quantity by the number parts — this is how much 1 part is worth.
3. Multiply each component of the ratio by how much 1 part is worth.

[Textbook answers \(only available during a lockdown\)](#)

