

TARGET To use ratio to solve problems involving the relative sizes of two quantities.

Example 1

A prize of £200 is shared 3 : 2 between Diane and Dave. How much should they receive each?

- 1 Find the number of shares.
 $5 (3 + 2 = 5)$
- 2 Find the value of each share.
 $£40 (£200 \div 5 = £40)$
- 3 Work out how much is received each.
Diane £120 ($£40 \times 3$)
Dave £80 ($£40 \times 2$)

Example 2

The ratio of boys to girls in a school is 6 : 5. There are 168 boys in the school. How many children are there altogether?

- 1 Find the total number of parts.
 $11 (6 + 5 = 11)$
- 2 Find the value of one part.
 $28 (168 \div 6 = 28)$
- 3 Work out the number of children.
 $308 (28 \times 11 = 308)$

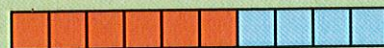
Example 3

The ratio of adults to children at a cinema is 3 : 4. There are 111 adults in the cinema. How many children are there?

- 1 Find the number of parts.
 $7 (3 + 4 = 7)$
- 2 Find the value of each part.
 $37 (111 \div 3 = 37)$
- 3 Work out the number of children.
 $148 (37 \times 4 = 148)$

A

A row of tiles is laid with this repeating pattern.



- 1 How many blue tiles are there if there are:
a) 12 red tiles b) 30 red tiles?
- 2 How many red tiles are there if there are:
a) 12 blue tiles b) 40 blue tiles?

In a raffle there is one prize for every 20 tickets.

- 3 How many prizes are there if:
a) 120 tickets are sold
b) 500 tickets are sold?
- 4 How many tickets have been sold if there are:
a) 9 prizes b) 17 prizes?
- 5 In Year 6 the ratio of dinners to packed lunches is 2 : 1. Forty children have a dinner. How many have a packed lunch?
- 6 In a class the ratio of boys to girls is 3 : 4. There are 16 girls. How many boys are there?
- 7 The ratio of red to green apples in a bowl is 3 : 1. If there are 15 red apples, how many apples are green?
- 8 At a market the ratio of blue jeans sold to black jeans sold is 7 : 2. If 6 black jeans are sold, how many blue jeans are sold?



B

- 1 In one season the ratio of goals for to goals against in Chelsea's matches was 5 : 3. If Chelsea scored 80 goals, how many did they let in?
- 2 In November the ratio of wet days to dry days was 4 : 1. How many days were wet?



- 3 In a survey of trees in a wood the ratio of beech trees to other trees was 2 : 5. If there were 14 beeches, how many other types of tree were there?
- 4 In a supermarket the ratio of male to female employees is 2 : 3. If there are 36 female employees, how many men work there?
- 5 During a lesson lasting one hour the ratio of the time Aidan spends working to the time he spends day-dreaming is 3 : 7. How long does he actually work?
- 6 In a hospital ward the ratio of nurses to patients is 2 : 9. If there are 63 patients, how many nurses are there?
- 7 A cashier in a bank counts £1300 in £10 and £20 notes only. The ratio £10 notes : £20 notes is 3 : 5. How many are there of each note?
- 8 Share:
 - a) 21 sweets in the ratio 3 : 4
 - b) £1.20 in the ratio 2 : 1
 - c) 1 litre of drink in the ratio 2 : 3
 - d) 36 strawberries in the ratio 4 : 5
 - e) £90 in the ratio 3 : 15
 - f) 480 g of nuts in the ratio 5 : 3.