Target Your Maths – Thursday 26ᵗʰ March

# RATIO

**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?

1️⃣ Find the number of shares.

5 (3 + 2 = 5)

2️⃣ Find the value of each share.

£40 (£200 ÷ 5 = £40)

3️⃣ Work out how much is received each.

Diane £120 (£40 × 3)
Dave £80 (£40 × 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?

1️⃣ Find the total number of parts.

11 (6 + 5 = 11)

2️⃣ Find the value of one part.

28 (168 ÷ 6 = 28)

3️⃣ Work out the number of children.

308 (28 × 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?

1️⃣ Find the number of parts.

7 (3 + 4 = 7)

2️⃣ Find the value of each part.

37 (111 ÷ 3 = 37)

3️⃣ Work out the number of children.

148 (37 × 4 = 148)

## A

A row of tiles is laid with this repeating pattern.



1️⃣ How many blue tiles are there if there are:

a) 12 red tiles      b) 30 red tiles?

2️⃣ 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.

3️⃣ How many prizes are there if:

a) 120 tickets are sold
b) 500 tickets are sold?

4️⃣ How many tickets have been sold if there are:

a) 9 prizes          b) 17 prizes?

5️⃣ In Year 6 the ratio of dinners to packed lunches is 2 : 1. Forty children have a dinner. How many have a packed lunch?

6️⃣ In a class the ratio of boys to girls is 3 : 4. There are 16 girls. How many boys are there?

7️⃣ The ratio of red to green apples in a bowl is 3 : 1. If there are 15 red apples, how many apples are green?

8️⃣ 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) 480g of nuts in the ratio 5:3.

## C

1. A photocopier enlarges in a ratio of 5:7. If the original document was 30cm long and 20cm wide, what are the dimensions of the photocopy?

2. In a bakery the ratio of large loaves to small loaves is 8:3. If there are 96 large loaves, how many small loaves are there?

3. On a plane the ratio of adult to child passengers is 15:2. If there are 300 adult passengers, how many children are there on the plane?

4. In a necklace the ratio of black to red to green beads is 1:2:4. If there are 32 red beads, how many beads are:
   a) black
   b) green?

5. In an English exam the ratio of marks given for spelling to writing to reading is 2:8:5. If there are 48 marks for writing, how many are there for:
   a) spelling
   b) reading?

6. In a sports shop the ratio of large to medium to small running vests sold is 3:5:4. If 15 medium vests are sold, how many large vests and how many small vests are sold?

7. Three afternoon lessons last for 2 hours altogether. The lengths of the lessons are in the ratio 2:3:3. How long is each lesson?

8. Split:
   a) 1·32m in the ratio 6:5
   b) £65 in the ratio 4:9
   c) 6 hours in the ratio 7:2
   d) 2kg in the ratio 1:3:4
   e) £5·40 in the ratio 3:2:5
   f) 750ml in the ratio 5:1:9.