Y6: Perform mental calculations, including mixed operations and large numbers



The scroll shows how A, B and C are related.

What numbers are missing from the table?

Α	В	С
5	3	7
27	4	
148	159	
25.8	0.7	



What are the missing values for C?



What numbers are missing from this table?

Α	В	С
58	206	132
3642	1100	
1749		925
	0.03	0.02

How did you work these out?



. What is the rule for this table?

А	В	С
3005	1997	2016
100	55	90
7451	7352	198
	6053	406

9	

 $(A + B) \div 2 = C$

4. Write a rule to show how to find A if you know B and C.

Use it to find the missing number.



Y6: Solve problems involving the relative sizes of two quantities



For every I2 cups he buys, he gets 8 free.

Of the I5 cups he drinks, he only pays for 9.

Ged and Li share £84 in the ratio 3:4.

2. True or false?

Ged gets £12 more than Li.

Ged gets £36.

Li gets more than half of the money.

3. What fraction of the money does Li get?

Tess and Chetan share some money in the ratio 5:2. Tess gets £24 more than Chetan.

4. How much money do they share? Show your working.





- 2. What is the greatest number of moves you can make?Describe any strategies you use.
- **3.** Can you find a route that takes you to the final number I?

43 Equation action



3. Lee says: When y = 9, then $(4y - 1) \div 5 = 3$.

Is he correct? How did you decide?

59 Dan's diet



This table shows the number of grams of each food-type Dan ate on Friday.

Food-type	Number of grams eaten
Fruit	450
Vegetables	600
Meat and fish	300
Dairy products	350
Other	100

How many grams of food did he eat in total?

- 2. What fraction of the food he ate was meat and fish?
- **3.** Which of these pie charts shows Dan's data? Give several reasons to explain your thinking.



4. The next day Dan drew a pie chart of the food-types he ate. It looked exactly the same as the pie chart for Friday. Does this mean he must have eaten exactly the same number of grams of each food on both days? Explain your reasoning.

Key questions

"What fraction of the animals are sheep/dogs?" "Kim expresses the number of animals in the field as $n \times 5 + n \times 2$. How would you express the difference between the number of sheep and dogs using the letter *n*?"

35 On the road

Ratio and proportion

Solve problems involving the relative sizes of two quantities

- **1.** 40 km
- 2. a) 50 km b) 54 km c) 56 km d) 57 km.
 3. Children might explain in words or using algebraic expressions. For example, you: add one to *n*; divide 60 by your answer; then either subtract this answer from 60 or multiply this answer by *n*. Algebraically it could be: 60 (60 ÷ (n + 1))

or $60 \div (n+1) \times n$.

4. 25 km and 35 km. The ratio 5:7 has 12 parts, so divide 60 by 12 to give 5. Then multiply 5 and 7 by 5 to give 25 and 35.

Key questions

"How could you work out the distance AB, if the ratio of AB to BC was m:n?" "Express this algebraically." [AB = $60 \div$ $(m + n) \times m$, BC = $60 \div (m + n) \times n$]

36 True or false?

Ratio and proportion

Solve problems involving the relative sizes of two quantities

1. False, he gets 6 cups free. True. True.

Key questions

"What fraction of Liam's drinks are free?"

- 2. False, Li gets £12 more than Ged. True. True.
 3. Li gets ⁴/₇ of the money.
- **4.** They share £56 in the ratio 5:2. Each part is £56 ÷ (5 + 2) = £8. Five out of the 7 parts = 5 × £8 = £40. Two out of the 7 parts = 2 × £8 = £16.

Key questions

"What fraction of the money is given to Ged? To Tess? To Chetan?" "What if Tess got £,48 more?"

37 Percentage puzzles

Ratio and proportion Solve problems involving the calculation of percentages and fractions

- 1. Find $\frac{4}{5}$ = Find 80%; Multiply by 0.5 = Halve; Find 75% = Find $\frac{3}{4}$; Find one quarter = Divide by 4.
- Answers will vary, with chains of moves for example, 100
 - \rightarrow Find 80% = 80
 - \rightarrow Add 50% to the number = 120
 - \rightarrow Multiply by 0.5 = 60
 - \rightarrow Find 80% = 48
 - \rightarrow Find $\frac{3}{4} = 36$
 - \rightarrow Subtract 16 = 20
 - \rightarrow Multiply by 0.5 = 10
 - \rightarrow Find 80% = 8
 - \rightarrow Multiply by 0.5 = 4
 - \rightarrow Find $\frac{3}{4} = 3$.

Children should notice that it is better to avoid odd numbers for as long as possible in their moves.

Key questions

"How else could the instructions be described, resulting the same operations?"

Q 3. One possible solution is: 100 → Find 80% = 80 → Multiply by 0.5 = 40 → Subtract 16 = 24 → Find $\frac{3}{4}$ = 18 → Subtract 16 = 2 → Multiply by 0.5 = 1.

Key questions

"How did you work this out?" "How can you get from 100 to 126 in two moves?"



We hope your children had fun using this Pinpoint sample pack!

If you would like to purchase the entire resource, please visit: **pearsonprimary.co.uk/pinpointbuy**

We have lots of more resources available to target specific needs in Maths and English. The range so far includes **Problem Solving and Reasoning**, **Word Problems, Times Tables, Spelling**, **Comprehension** and **Grammar and Punctuation**, with lots more coming soon!



If you no longer wish to receive this information, please opt out here **pearson.com/uk/dmoptout**