

MATH · YEAR 6

# SATs Maths Reasoning Paper Prep

Strategies for both reasoning papers

## What's on the reasoning papers

There are two SATs Maths Reasoning papers, each 40 minutes, each worth 35 marks. They test problem-solving rather than calculation. Children need to read carefully, identify the maths, choose a method, work it through, and check the answer. Word problems often have multiple steps. Time management matters — aim for about 1 minute per mark.

## The 5 problem-solving strategies

1

### Bar model

Draw a bar to represent the problem. Especially good for fractions, ratios and proportional reasoning.

2

### Working backwards

If you know the end, work back to the start. Useful for missing-number problems.

3

### Find a pattern

Make a small example, look for the rule, apply it to the bigger problem.

4

### Trial and improvement

Try a sensible answer. See how close. Adjust. Especially good for puzzle questions.

5

### Underline the question

Before doing any maths, underline what's being asked. Most lost marks come from answering the wrong question.



## Set 1: Multi-step word problems

1. A pencil costs 35p. A pen costs twice as much. How much for 3 pens and 2 pencils?
2. A rectangle has a perimeter of 36cm. The length is twice the width. What is the area?
3. Tom has £24. He spends  $\frac{1}{3}$  on lunch and  $\frac{1}{4}$  of what's left on a magazine. How much has he got left?
4. A train leaves London at 09:35 and arrives in Manchester at 11:48. How long is the journey?
5. 480 children are split into groups of 6. How many groups? If 8 children are absent, how many full groups of 6 can be made?
6. A water tank holds 240 litres. It is  $\frac{5}{8}$  full. How many more litres are needed to fill it?

## Set 2: Bar model problems

1. Sarah has 3 times as much money as Tom. Together they have £64. How much does each have?
2. A class has 30 children. The ratio of boys to girls is 3:2. How many boys? How many girls?
3. Two numbers are in the ratio 4:5. They add up to 81. What are the two numbers?
4. After spending £15, James has  $\frac{2}{5}$  of his money left. How much did he start with?

## Answer key

Set 1:

1. Pen = 70p. 3 pens = £2.10. 2 pencils = 70p. Total = £2.80.
2. Width = 6cm, length = 12cm (perimeter check:  $2 \times (6+12)=36$ ). Area =  $72\text{cm}^2$ .
3. Lunch = £8. Left = £16. Magazine = £4. Final = £12.
4. 2 hours 13 minutes (or 133 minutes).
5.  $480 \div 6 = 80$  groups. With 472 children:  $472 \div 6 = 78 \text{ r } 4 \rightarrow 78$  full groups.
6. Tank is  $\frac{5}{8}$  full = 150 litres. Empty space =  $240 - 150 = 90$  litres needed.

Set 2:

1. Tom + Sarah = £64. Tom has 1 part, Sarah has 3 parts = 4 parts total.  $\£64 \div 4 = \£16$ . Tom = £16, Sarah = £48.
2.  $3+2 = 5$  parts.  $30 \div 5 = 6$ . Boys = 18, Girls = 12.
3.  $4+5 = 9$  parts.  $81 \div 9 = 9$ . Numbers are 36 and 45.



4. £15 was  $\frac{3}{5}$  of his money. So  $\frac{1}{5} = \text{£}5$ . Started with £25.

