



**THIRD SPACE
LEARNING**

Key Stage 2 SATs Paper 3: Reasoning Pack 1

Mathematics Practice Test and
Mark Scheme

Year 6

Name:

Class:

School:

Score:

Instructions

You **may not** use a calculator to answer any questions in this test.

Questions and answers

- Follow the instructions for each question.
- Work as quickly and as carefully as you can.
- If you need to do working out, you can use the space around the question.
- Do not write over any barcodes.
- **Some questions have a method box like this:**

- For these questions, you may get a mark for showing your method.
- If you cannot do a question, **go on to the next one**.
- You can come back to it later, if you have time.
- If you finish before the end, **go back and check your work**.

Marks

- The number under each line at the side of the page tells you the maximum number of marks for each question.

1 $465 + \boxed{} = 605$

1 mark

- 2 An evening temperature in Stockholm is -9°C . If it falls by 7 degrees, what will the new temperature be?

 $^{\circ}\text{C}$
1 mark

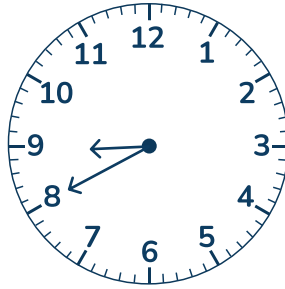
This table shows the average temperatures of five cities in January:

City	Average temperature
Barcelona	8.9°C
Innsbruck	-2°C
London	4.3°C
Moscow	-8°C
Prague	-1°C

What is the **difference** between the lowest and highest temperatures?

 $^{\circ}\text{C}$
1 mark

- 3 Samir has a watch that shows analogue time. This is how his watch shows 20 minutes to 9 in the evening:



Anna has a digital watch that shows the time using the 24-hour clock. What does her watch show at 20 minutes to 9 in the evening?

:

1 mark

- 4 Find the values of a and b ,
if $7a - 4b = 2$ and $2a + 5b = 19$

a =

1 mark

b =

- 5** Write these numbers in order from smallest to largest:

21.54 21.398 21.045 21.504

_____ smallest _____ largest

1 mark

- 6 Jake lived in London and was travelling 530.4 kilometres to Scotland for his holiday. He drove 205.72 kilometres, then he stopped for a break.

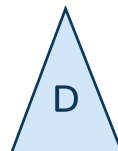
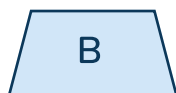
After another 135.6 kilometres he needed to stop for fuel. How much further does he still need to travel to reach his holiday destination?

km

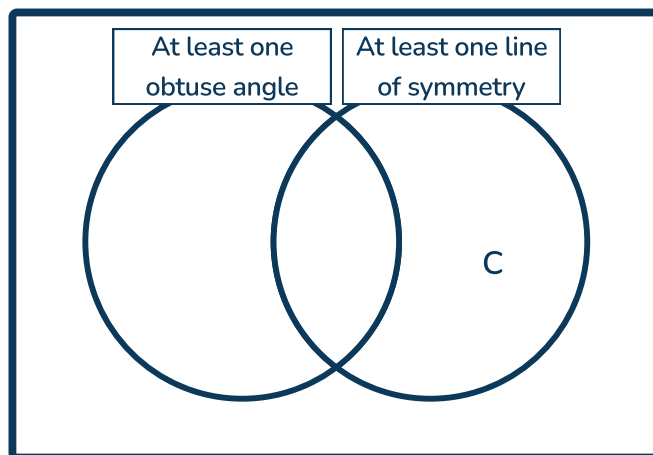


2 marks

- 7 Here are 5 shapes, labelled A-E:



Write the letter for each shape in the correct place on the Venn diagram.
One has been done for you.



2 marks

8 Calculate the value of  and 

$$\heartsuit + \heartsuit + \heartsuit = 10.5$$

$$\heartsuit + \text{sun} + \text{sun} = 7.7$$

$$\text{sun} + (3 \times \text{star}) = 7.2$$

$$\text{sun} = \boxed{}$$

1 mark

$$\text{star} = \boxed{}$$

1 mark

9 Here is part of a train timetable:

Runford	09:17	10:10	11:12	12:00
Telham	09:24	10:19	11:22	12:11
Serbridge	09:46		11:47	12:35
Colshore	09:57	10:54	11:56	12:49
Polmouth	10:05	11:01	12:02	12:58

How long does it take the **09:17** train to travel from **Serbridge** to **Polmouth**?

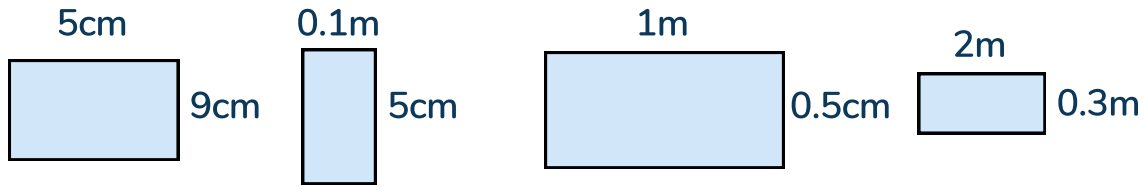
minutes

1 mark

The 10:10 train from Runford takes 24 minutes to travel from Telham to Serbridge. Fill in the missing time on the timetable.

1 mark

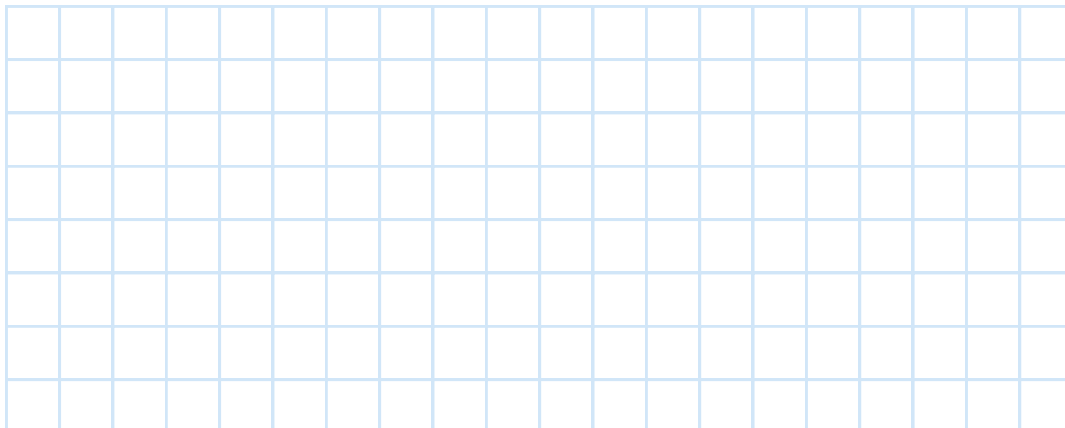
- 10 Tick (✓) the **two** rectangles that have the same area.
Diagrams have not been drawn to scale.



1 mark

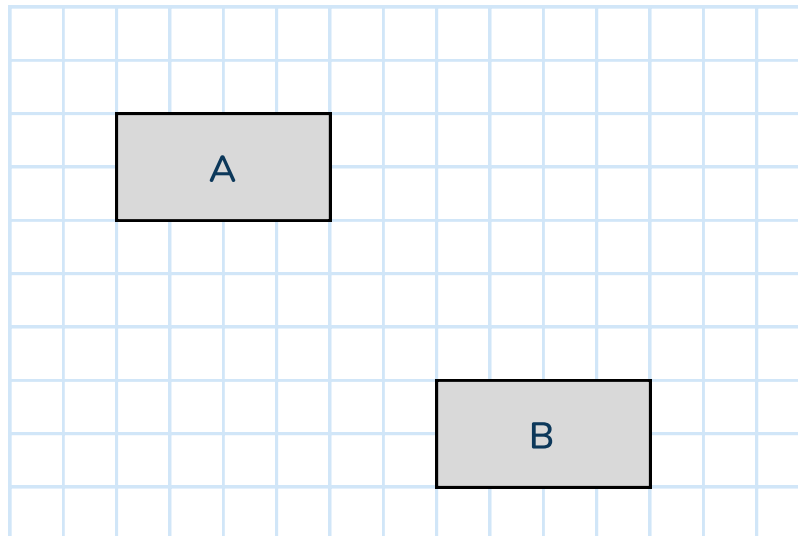
- 11 The storeroom at a supermarket has:
12 cases of salt and vinegar flavour crisps
8 cases of cheese and onion flavour crisps
Each case contains 6 boxes of crisps.
Each box contains 24 packets of crisps.

How many packets of crisps are there in total?



2 marks

- 12 The rectangle has been translated from position A to position B.



Tick the correct statement:

- a) The rectangle has moved 1 square to the right and 3 squares down. ☐
- b) The rectangle has moved 1 square to the right and 5 squares down. ☐
- c) The rectangle has moved 5 squares to the right and 3 squares down. ☐
- d) The rectangle has moved 6 squares to the right and 5 squares down. ☐

☐

1 mark

- 13 Write $\frac{9}{4}$ as a mixed number

1 mark

$$\frac{6}{10} = \frac{\boxed{}}{5}$$

1 mark

- 14 Complete each statement:

There are centimetres in 1.8m

There are metres in 0.056km

centimetres make 34mm

There are metres in 8.9km

2 marks

- 15 Round each number in the table to the nearest 100 and to the nearest 10,000. One has been done for you.

Number	Rounded to nearest 100	Rounded to nearest 10,000
45,198	45,200	
172,057		

2 marks

- 16 This is a recipe for making 24 biscuits:

200g butter 200g sugar 2 eggs 550g flour

Sunil uses 5 eggs to make his biscuit dough. How many biscuits does he make?

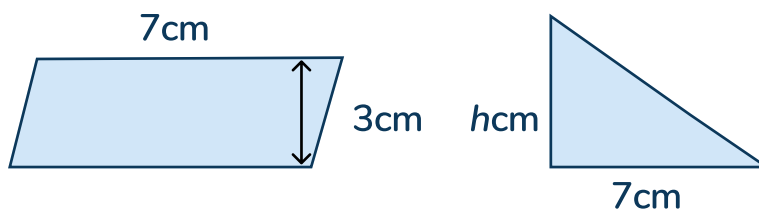
1 mark

How much flour would he need to use to make 18 biscuits?

g

1 mark

-
- 17 The areas of the parallelogram and triangle are the same.
The diagrams have not been drawn to scale.



Calculate the height (**h**) of the triangle

h = cm

1 mark

18 Tick **all** the shapes that have all of these properties:

Are quadrilaterals

Have diagonals that are of equal length

Have opposite sides that are of equal length



2 marks

19 Here are 5 digit cards:



Use all five cards to make a number that would round to 20,000 when rounded to the nearest 10,000

1 mark

Use any of the cards to make the smallest 3-digit number that would round to 260 when rounded to the nearest 10

1 mark

- 20 Cara had £8,000 in her savings account. Each year the value of the savings increases by 2.5%.

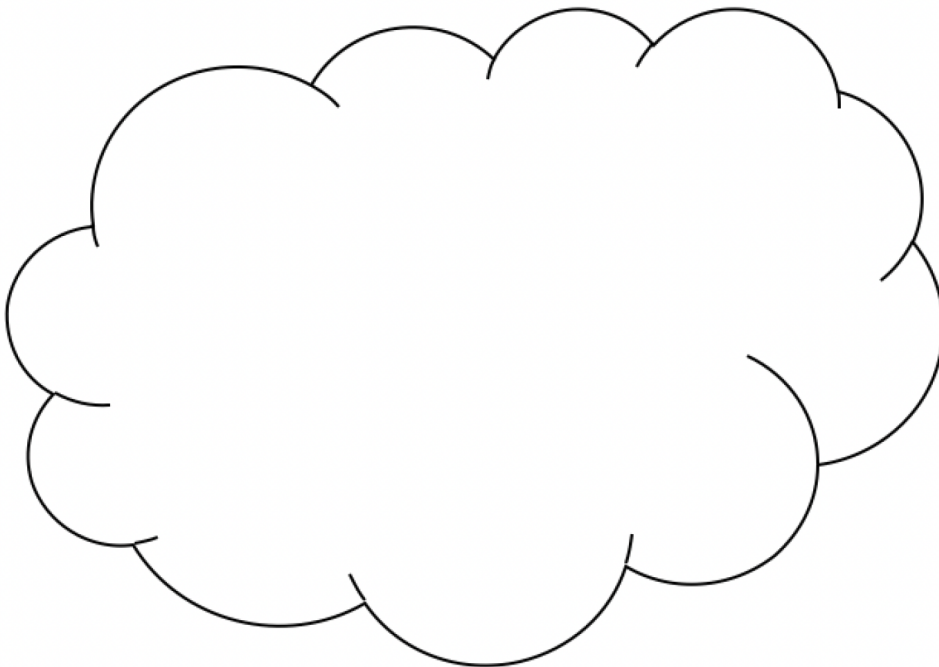
How much money will Cara have in her savings account after 2 years?

£



2 marks

- 21** If $4,410 \div 18 = 245$, explain how you know what 246×18 is.



1 mark

Mark Scheme

The instructions and principles of this mark scheme closely follow the guidance in the 2016 national curriculum tests.

We have deliberately not set a limited time for the test paper as a teacher may want to vary it according to the standard individual children are working at.

The national curriculum test allows 40 minutes to complete this test.

Level of demand

(low) 1 = Recall of facts or application of procedures

2 = Use facts and procedures to solve simple problems

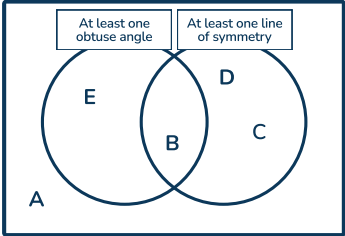
3 = Use facts and procedures to solve more complex problems

(high) 4 = Understand and use facts and procedures creatively to solve complex or unfamiliar problems



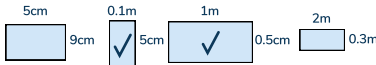
Answers

Question Number	Requirement	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
1	140	1m		3C1	Calculation	1
2	a) -16°C b) 16.9°C	1m		6N5 6N5	Number	2 2
3	20:40	1m	Do not accept 8:40pm	4M4b	Measures	1
4	a) $\mathbf{a} = 2$ b) $\mathbf{b} = 3$	1m 1m		6A4 6A4	Algebra	3 3
5	21.045 21.398 21.504 21.54	1m		5F8	Fractions	2

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Question Number	Requirement	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
6	<p>Award TWO marks for the correct answer of 189.08km</p> <p>If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g.</p> $530.4 - 205.72 = 324.68$ $324.68 - 135.6$ <p>OR</p> $205.72 + 135.6 = 341.32$	Up to 2m		4F10b	Fractions	2
7	<p>Award TWO marks for all 4 letters correctly placed:</p>  <p>If the answer is incorrect award ONE mark for 3 letters correctly placed</p>	Up to 2m	<p>Accept 'A' drawn anywhere outside the circles.</p> <p>Accept alternative unambiguous indications.</p> <p>Do not accept letters written in more than one region.</p>	4G2b 4G4	Geometry	2

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Question Number	Requirement	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
8	 = 2.1  = 1.7	1m 1m		6C8	Geometry	2
9	a) 19 minutes b) 10:43	1m 1m	Accept any unambiguous correct answer, e.g. 43 minutes past 10, 17 minutes to 11, 10-43, 10;43, 10 43	5S1 5S1	Statistics	2 2
10		1m	Accept any unambiguous indication.	5M7b	Measures	2
11	<p>Award TWO marks for the correct answer of 2,880</p> <p>If the answer is incorrect, award ONE mark for evidence of an appropriate method with no more than one arithmetic error, e.g.</p> <p>12 + 8 = 20 20 x 6 = 120 120 x 24</p>	Up to 2m		6C7a	Calculation	3 3

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Question Number	Requirement	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
12	d	1m	Accept any clear indication of the correct answer	4P2	Geometry	1
13	a) $2\frac{1}{4}$	1m	Accept "3"	5F2a 5F2b	Fractions	2
	b) $\frac{3}{5}$	1m				2
14	<p>Award TWO marks for the correct answer of:</p> <p>There are <input type="text" value="180"/> centimetres in 1.8m</p> <p>There are <input type="text" value="56"/> metres in 0.056km</p> <p><input type="text" value="3.4"/> centimetres make 34mm</p> <p>There are <input type="text" value="8900"/> metres in 8.9km</p> <p>If the answer is incorrect, award ONE mark for three lines correct answers.</p>	Up to 2m		6M5 6M5	Measures	2 2

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Question Number	Requirement	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand									
15	<p>Award TWO marks for all three boxes completed correctly:</p> <table><tr><th>Number</th><th>Rounded to nearest 100</th><th>Rounded to nearest 10,000</th></tr><tr><td>45,198</td><td>45,200</td><td>50,000</td></tr><tr><td>172,057</td><td>172,100</td><td>170,000</td></tr></table> <p>If the answer is incorrect, award ONE mark for any two correct boxes</p>	Number	Rounded to nearest 100	Rounded to nearest 10,000	45,198	45,200	50,000	172,057	172,100	170,000	Up to 2m		5N4	Number	2
Number	Rounded to nearest 100	Rounded to nearest 10,000													
45,198	45,200	50,000													
172,057	172,100	170,000													
16	a) 60 b) 412.5g	1m 1m	Accept 413g	6R4	Ratio	2 2									
17	6cm	1m		6M7b	Measures	3									
18	Square ticked Rectangle ticked	1m 1m	Accept other clear indications of the correct shapes	6G2a	Geometry	2 2									
19	a) 23,__ __ (it does not matter what order the last 3 digits go in) b) 256	1m 1m	Accept: 23,569 23,659 23,956 23,596 23,695 23,965	6N6	Number	2 2									

Key Stage 2 SATs Mathematics Practice test | Paper 3: Reasoning | Answers




Question Number	Requirement	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
20	Award TWO marks for the correct answer of £8,405 If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g. $2.5\% \text{ of } £8,000 = £200$ $£8,000 + £200 = £8,200$ $2.5\% \text{ of } £8,200 = £205$ $£8,200 + £205 =$	Up to 2m		5F10	Fractions	4
21	Award ONE mark for an explanation that shows that 4,428 can be made by adding 18 to 4,410 e.g. <ul style="list-style-type: none"> • $4,410 + 18 = 246 \times 18$ • 246×18 is 18 more than 245×18 • You add 18 to 4,410 • You can add 18 to the answer of 245×18 • $4,410 + 18$ 	1m	Do not accept an explanation that just calculates $246 \times 18 = 4,428$ Do not accept vague, incomplete or incorrect explanations e.g. <ul style="list-style-type: none"> • You add 18 • $4,428 - 18 = 4,410$ 	6C8	Calculation	3

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