



THIRD SPACE
LEARNING

Key Stage 2 SATs Paper 3: Reasoning Pack 2

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 What needs to be added to 783 to make 803?

1 mark

How many tens need to be subtracted from 4,270 to make 4,100?

1 mark

-
- 2 Circle the Roman numeral for 2009.

MMVIII MMXI MMIX IXMM

1 mark

Give your answer to this addition calculation in Roman numerals:

CLXXV + XLIV =

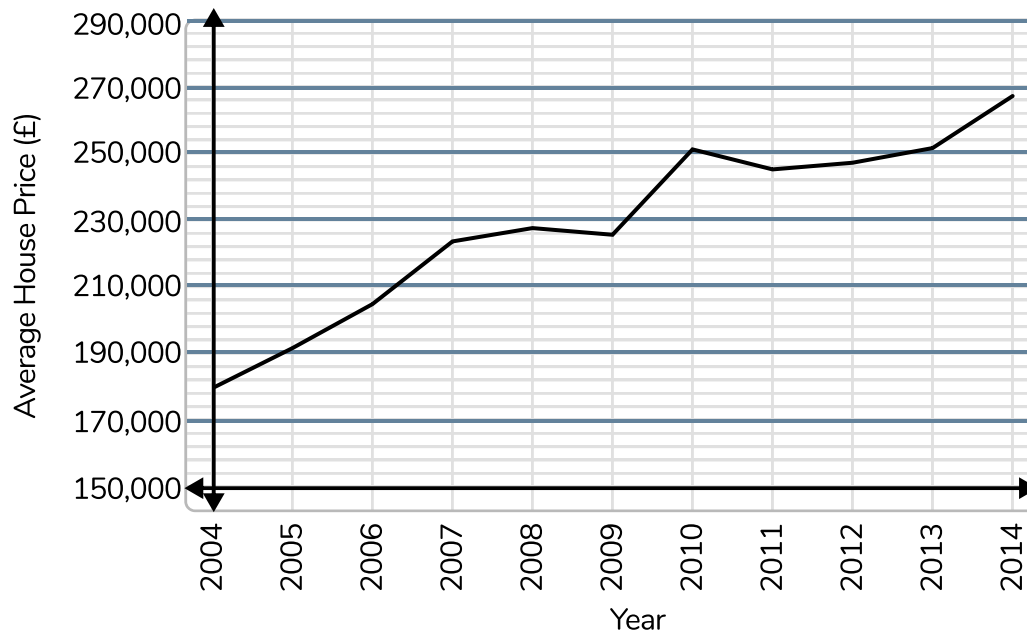
1 mark

-
- 3 Find the two **square numbers** that add together to make 100.

_____ and _____

1 mark

- 4 This line graph shows average house prices in the UK between 2004 and 2014:



In which year was the average UK house price approximately £20,000 lower than the average house price in 2009?

1 mark

By how much did property prices increase between 2009 and 2014?

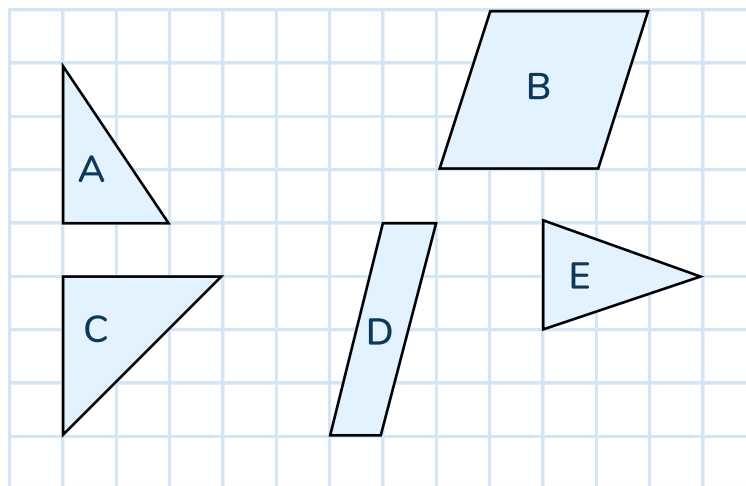
1 mark

- 5 Put the same number in each box to make the calculation correct.

$$140 + 10 - \boxed{} = \boxed{} - 30$$

1 mark

- 6 Here are five shapes on a 1cm square grid:



Which two shapes together have a total area of 7cm²?

_____ and _____

1 mark

- 7 Each row and column in this square has the same total.
Write the missing number in the empty square.

1.25	1.50	
1.85	1.63	0.52
0.9	0.87	2.23

1 mark

- 8 $2.46 \times 8 =$

1 mark

- 9 On average a lion in a zoo eats 4,950g of meat every day.
The meat comes in 6kg packs.
How many packs of meat does the zoo need to buy to feed the lion for one week?
Show your method.

2 marks

- 10 It takes John 3.5 minutes to walk to the end of his road, how many seconds is this?

seconds



1 mark

Wild elephants live to be approximately 42 months old. How many years and months is this?

_____ years and _____ months



1 mark

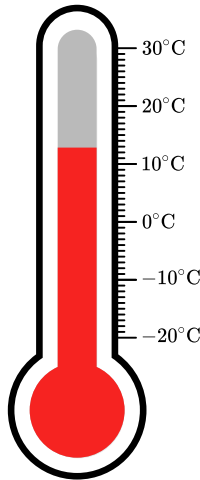
- 11** A florist stocks three types of roses; pink, white and red.
Half of all the roses are pink.
There are 28 red roses and there are twice as many white roses as red roses.
The florist sells all of the roses at 20p each.
How much money does she receive for the roses?
Show your method.

£



2 marks

- 12 The thermometer shows the temperature at 1pm. By 1am, the temperature had fallen by 17°C :



What was the temperature at 1am?

$^{\circ}\text{C}$	
--------------------	--

1 mark

- 13 The formula used to calculate the perimeter p of a rectangle is $p = 2 \times (a + b)$ where a = length and b = width.

What is the perimeter if $a = 5\text{cm}$ and $b = 3\text{cm}$?

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1 mark

What is b if $p = 36\text{cm}$ and $a = 7\text{cm}$?

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1 mark

- 14 A map has a scale of 1cm to 4km.

The road from Carton to Ambridge measures 5.8cm on the map.

How far is it from Carton to Ambridge in kilometres?

km	
----	--

1 mark

- 15 Match each calculation to the correct answer.

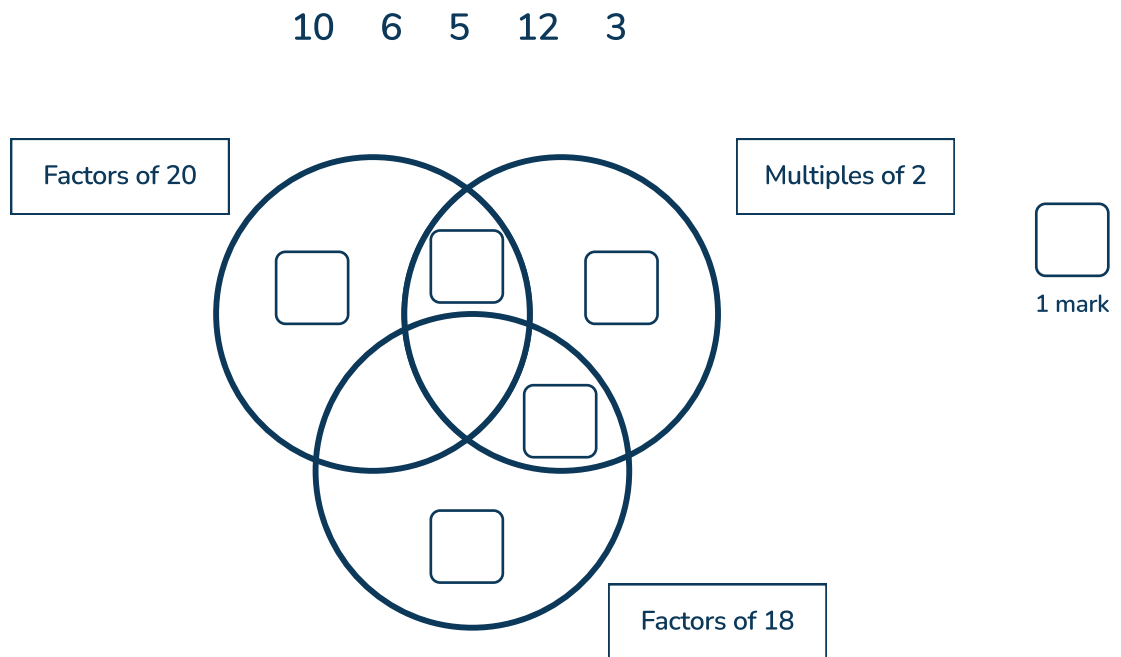
One has been done for you.

$4 + (4 \times 3) - 6$	27
$20 - 2 \times 7$	10
$14 \div 2 + 5 \times 4$	29
$16 \div 8 - 2$	0
$9 + 5 \times (7 - 3)$	6

--

2 marks

- 16 Write each number in its correct box on the Venn diagram.



Think of a number (not in the list above) that can go in the central section where all three circles overlap.

1 mark

- 17 Write these numbers in figures:

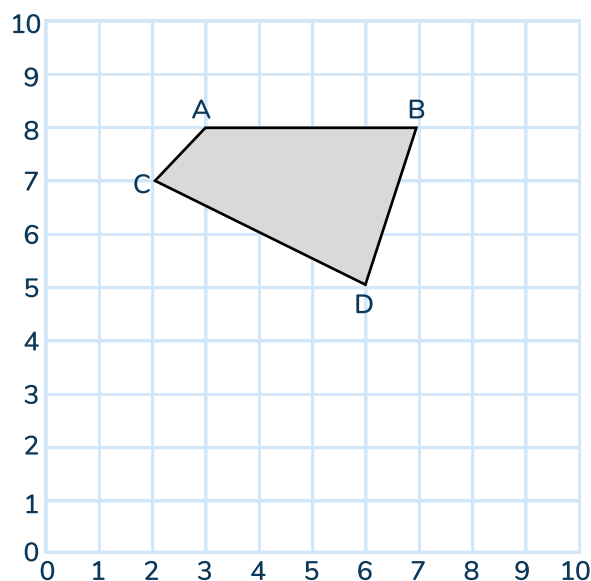
Five thousand and twenty-five

1 mark

One hundred and seven thousand, four hundred and fifty

1 mark

- 18 A quadrilateral has been drawn on the coordinate grid below.



Where can you move vertex B to make the shape a parallelogram?

1 mark

- 19 There are three 9 year olds to every five 10 year olds in Year 4.
There are 88 children in Year 4.
How many are 10 years old?



2 marks

20 Three friends won a total £6,000. Harriet won 40% of the total amount. Karl won 20% of the total amount. How much did Suresh win?
Show your working out.



2 marks

- 21
- Containers of sweets are packed in a box that is 40cm wide, 30cm long and 30cm high. How many containers of sweets can fit in this box if each one is 10cm x 6cm x 2cm?



3 marks



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

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
1	a) 20 b) 17	1m 1m	Do not accept 170	3N3 4N3a	Number	1 1
2	a) MMIX b) CCXIX	1m 1m	Accept alternative unambiguous indications, e.g. Roman numerals ticked or underlined Do not accept 219	5N3b 5N3b	Number	2 3
3	36 and 64	1m		5C5d	Calculation	2
4	a) 2006 b) £40,000	1m 1m		5S2 5S2	Statistics	1 1
5	$140 + 10 - 90 = 90 - 30$	1m		3C4	Calculation	3
6	D and E	1m		6M7b	Measures	2
7	1.25	1m		5F10	Fractions	2
8	19.68	1m		6F9b	Fractions	2

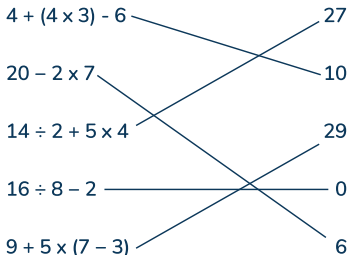
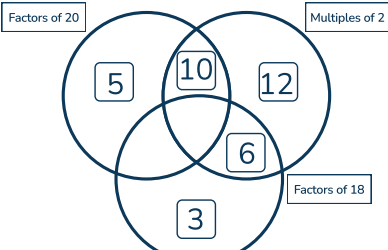
Key Stage 2 SATs Mathematics Practice test | Paper 3: Reasoning | Answers

Question Number	Requirement	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
9	Award TWO marks for the correct answer of 6. If the answer is incorrect award ONE mark for evidence of an appropriate method with no more than one arithmetic error, e.g. $4,950 \times 7 = 34,650\text{g}$ $34,650 \div 1,000 = 34.65\text{kg}$ $34.65 \div 6 = 5.775$ packs OR $4.95 \times 7 = 34.65\text{kg}$ $34.65 \div 6 = 5.775$ packs OR $4,950 \times 7 = 34,650\text{g}$ $34,650\text{g} \div 6,000 = 5.775$ OR Uses rounded mass: Lion eats 5kg each day = 35kg each week Needs 6 packs to provide 36kg	Up to 2m 1m 1m 1m 1m	Accept for ONE mark for an answer of 5.775 as evidence of an appropriate method. OR The lion eats approx. 35kg each week	6F10	Fractions	3

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
10	a) 210 seconds b) 3 years and 6 months	1m		4M4c 4M4c	Measures	1
11	Award TWO marks for the correct answer of £33.60 If the answer is incorrect award ONE mark for evidence of an appropriate method with no more than one arithmetic error, e.g. White = $28 \times 2 = 56$ White + red = $56 + 28 = 84$ Pink = 84 $84 + 84 = 168$ $168 \times 20 = 3360p$	Up to 2m	Accept for TWO marks a clear indication of the correct amount, e.g. £33.60p Accept for ONE mark an answer of £3,360, £336.0 or £3360p as evidence of an appropriate method.	5C8b	Calculation	3
12	-4°C	1m		5N5	Number	2
13	a) 16cm b) 11cm	1m 1m		6A2 6A2	Algebra	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
14	23.2km	1m		6R3	Ratio and proportion	2
15	Award TWO marks for all 4 correct:  Award ONE mark for 2 or 3 correct.	Up to 2m		6C9 6C9	Calculation	2
16	a) Award ONE mark for all five numbers positioned correctly.  b) 2	1m 1m		6C5 6C5	Calculation	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
17	a) 5,025 b) 107,450	1m 1m	Accept 413g	5N2 5N2	Number	2 2
18	Move corner B to (7, 6)	1m		6G2a	Geometry	2
19	Award TWO marks for the correct answer of 55. If the answer is incorrect, award ONE mark for evidence of an appropriate method with no more than one arithmetic error, e.g. 3 + 5 = 8 88 ÷ 8 = 11 1 part = 11 11 x 5 = 54 (error)	2m		6R1	Ratio	3

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 £2,400 If the answer is incorrect award ONE mark for evidence of an appropriate method with no more than one arithmetic error, e.g. $£6,000 \div 5 = £1,200$ $£1,200 \times 2 = £2,400$ (Harriet) $20\% \text{ of } £6,000 =$ $£1,200$ (Karl) $£1,200 + £2,400 =$ $£3,600$ $£6,000 - £3,600 =$ $£2,400$	Up to 2m	Accept for TWO marks a clear indication of the correct amount, e.g. £2,400p Accept for ONE mark the correct amount for either Harriet or Karl	6R2	Ratio	3

Question Number	Requirement	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
21	Award THREE marks for $36,000 \div 120 = 300$ with correct, appropriate working. Award TWO marks for sight of $36,000\text{cm}^2$ AND 120cm^2 Evidence of appropriate methods with no more than one arithmetic error Award ONE mark for either: Volume of box: $40 \times 30 \times 30 = 36,000\text{cm}^2$ OR Volume of one sweet container: $10 \times 6 \times 2 = 120\text{cm}^2$	Up to 3m	TWO marks can be awarded if a misread number is followed through correctly OR If an answer of 270 is given, award TWO marks as evidence of the correct method but incorrect packing arrangement choice.	5M9d	Measures	4

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