KS2 SATs Paper

Reasoning
Practice Paper 3

Pack 3

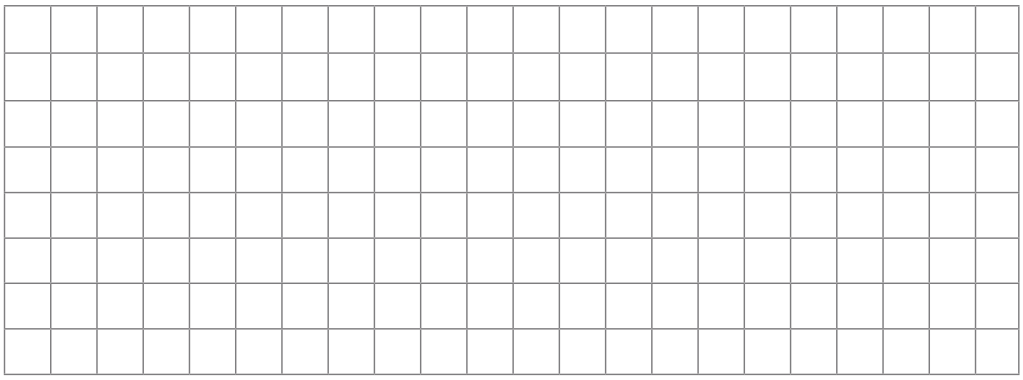
First name	
Last name	
Class	
Score	/ 35

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:

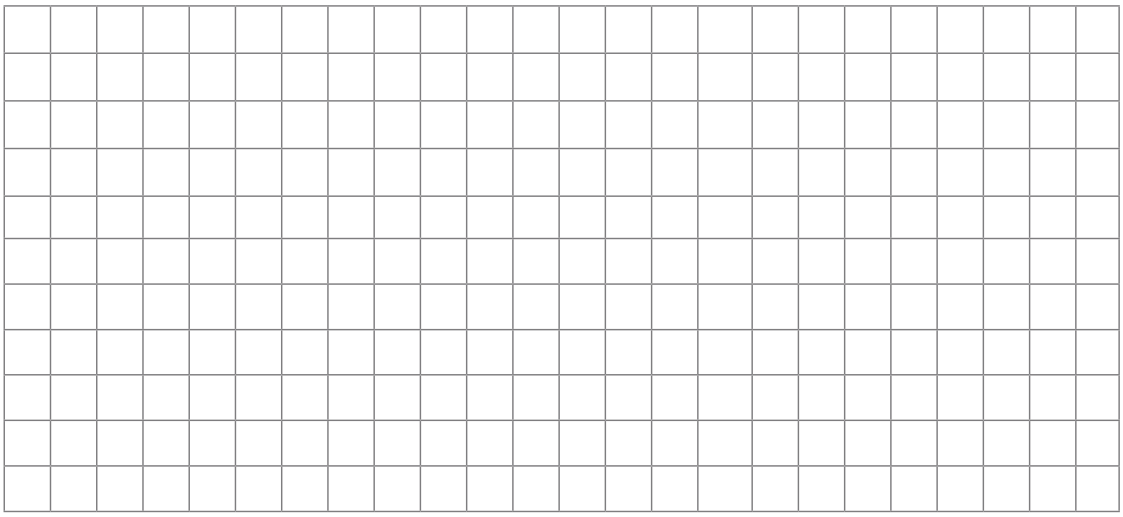


- For these questions, you may get a mark for showing your method.
- If you cannot do a question, go on to the next one.
- You can come back to it later, if you have time.
- If you finish before the end, go back and check your work.

Marks

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

1 **Calculate** 536 + 873

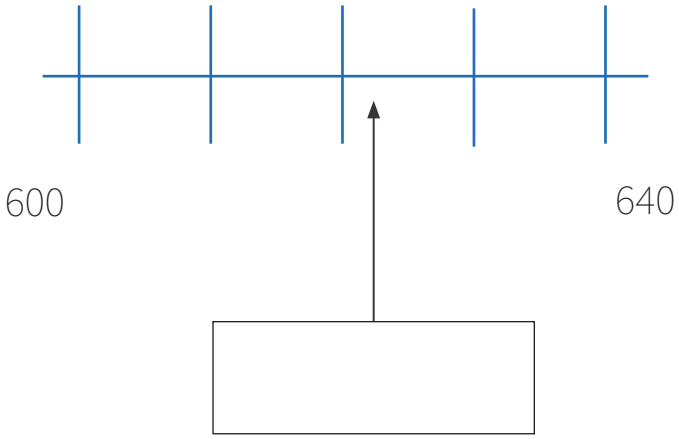


1 mark

2 $\frac{5}{7} - \frac{3}{7} =$ ☐

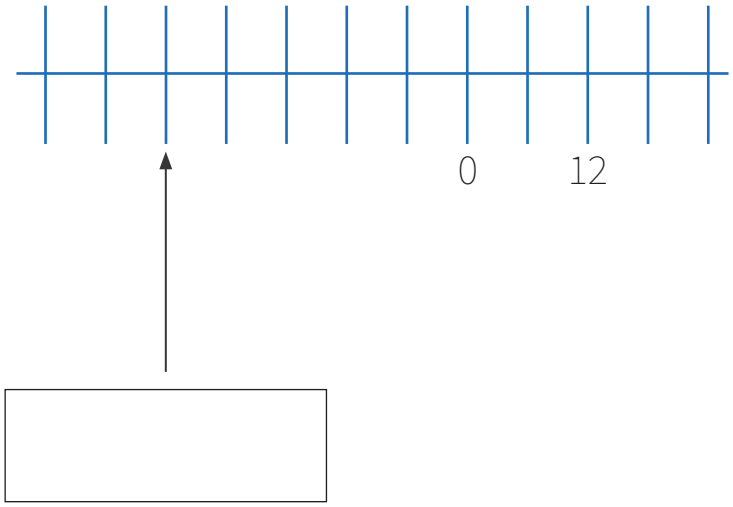
1 mark

3a **Estimate** the number shown by the arrow.



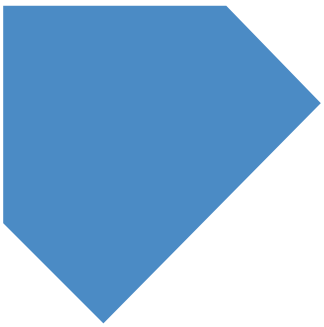
1 mark

3b Write in the number shown by the arrow.



1 mark

4 Circle the **right angles** in this shape.



1 mark

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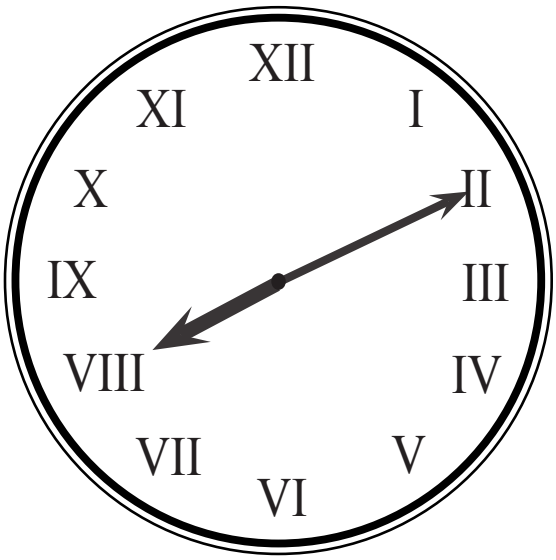
5 What is the time 15 minutes before the time shown on the clock?
Write your answer in the digital clock.



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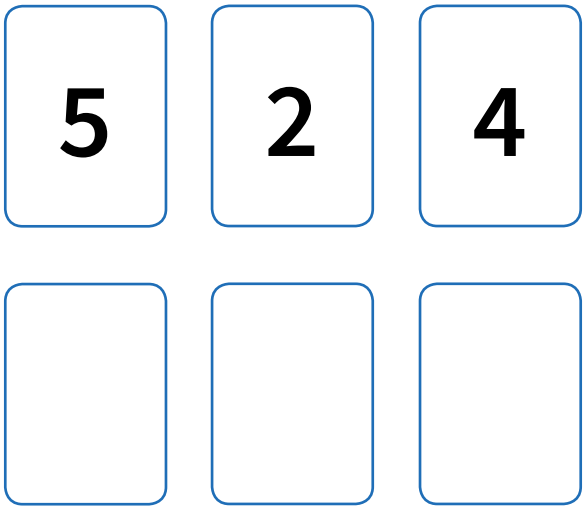
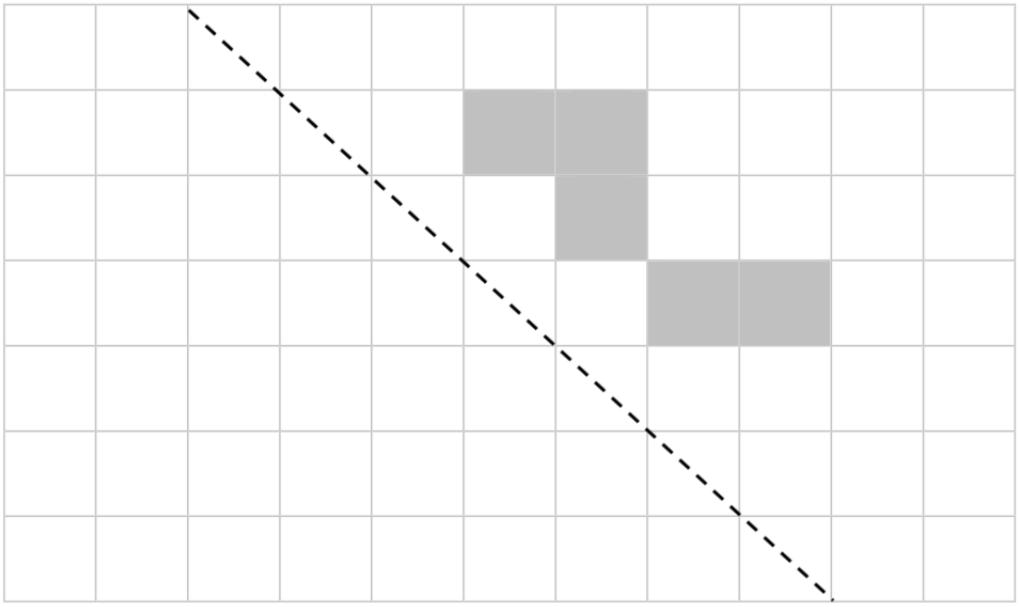
1 mark

6 Rearrange these digits to make a 3-digit **odd** number, that rounds to 250, when it is rounded to the **nearest 10**.



1 mark

7 Reflect the shape in the mirror line.



1 mark

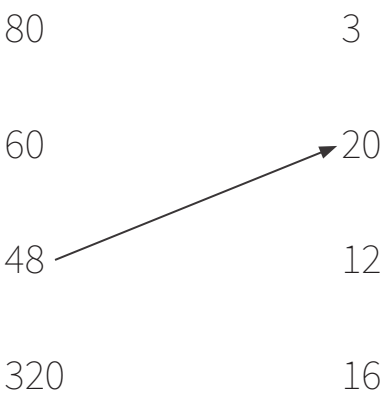
8 Sally took part in a sponsored walk.
She was sponsored **£0.70 for every 100m** she walked.
She raised £5.95.

How far did she walk?

m

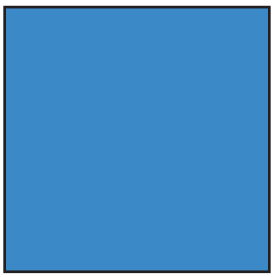
1 mark

9 Draw lines to make **four factor pairs** of 960.
One has been done for you



1 mark

10 Look at the square.



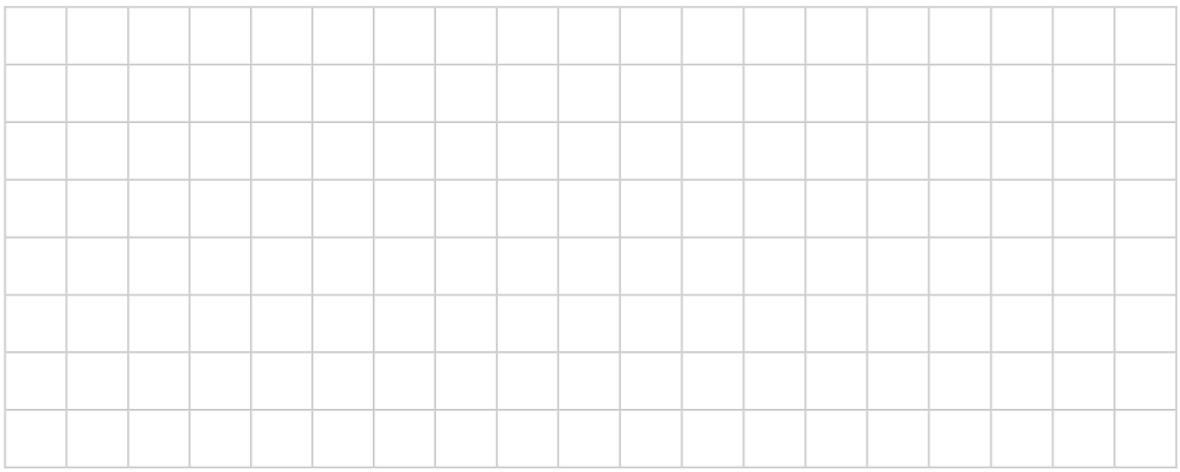
6cm

a What is the **perimeter** of the square?

1 mark

b On the grid below draw a rectangle that has the same area as the square above.

1cm



1 mark

11 Look at these numbers:

24.108 24.2 24.08 24.27 24.18

a Put the numbers in order, from smallest to largest.

_____ _____ _____ _____ _____

smallest largest

1 mark

b Write 24.2 as a **mixed number**.

1 mark

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12 **Calculate** angle *x*

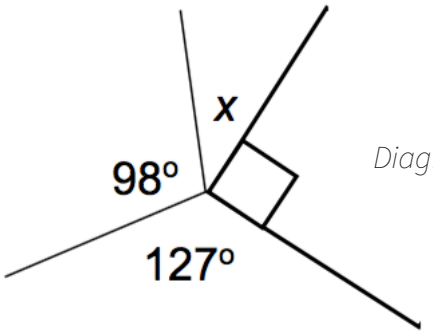


Diagram not to scale

°

1 mark

13 A farm has **300kg** of carrots to pack.

They make seventy 2kg boxes and thirty 3kg boxes. The rest of the carrots are packed into 4kg boxes. How many **full** 4 kg boxes can be made?

2 marks

14 Tick (✔) or cross (**x**) each calculation to show whether it is right or wrong.

calculation	✔ or **x**
$\frac{1}{3} \times \frac{1}{2} = \frac{2}{3}$	
$\frac{1}{4} \div 2 = \frac{1}{8}$	
$\frac{2}{5} + \frac{1}{2} = \frac{3}{7}$	
$6\frac{3}{4} - 4\frac{1}{4} = 2\frac{1}{4}$	

2 marks

15a There are **36** cookies in a tin. A factory makes **2,724** tins of biscuits. How many **biscuits** do they make?

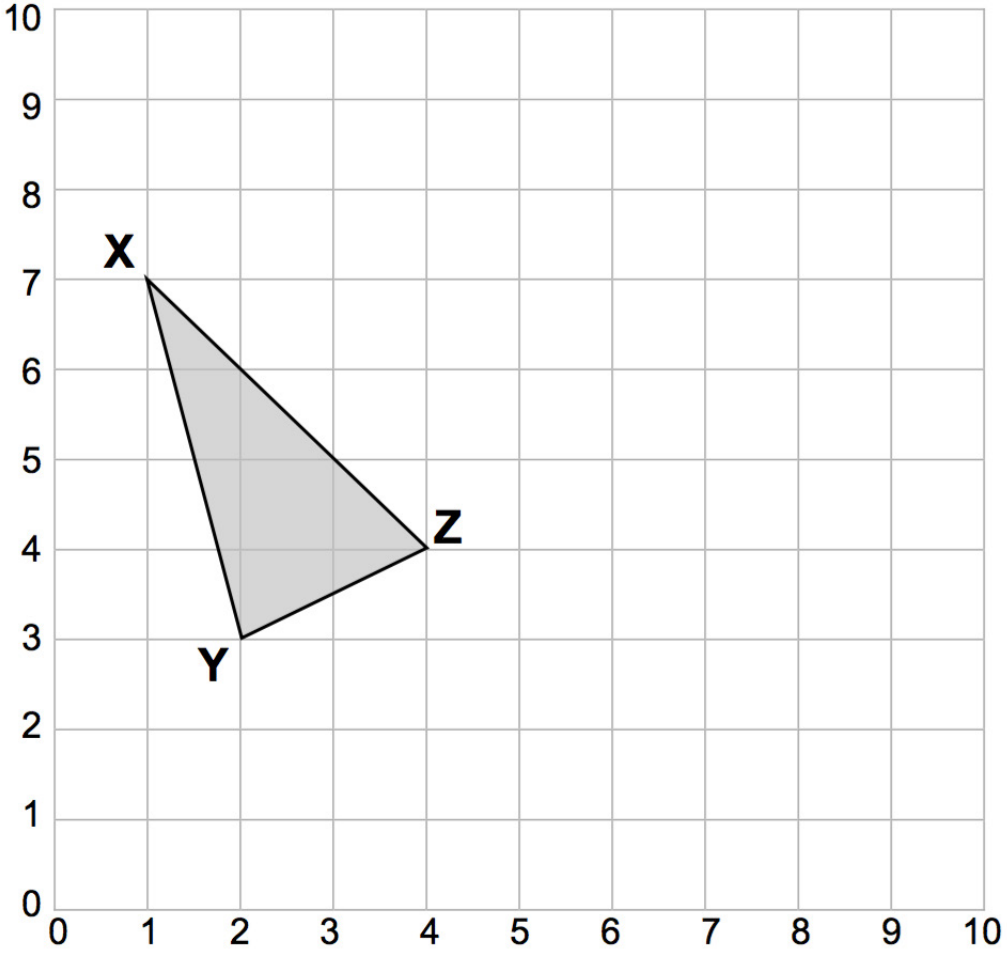
1 mark

15b The factory packs the **2,724** tins of biscuits into **6 lorries**. There are the **same number** of tins in each lorry.

How many **tins of biscuits** are in each lorry?

1 mark

16 A triangle has been drawn on a co-ordinate grid.



The triangle is translated 4 squares to the right and 3 squares down.

Write the new co-ordinate of corner **Z**.

(,)

1 mark

17 What is the **width** of a field that is 145m long and has an area of 11,600m^2?

m

1 mark

18 Here is part of a train timetable:

Hampton Court	12:24	12:54	13:24	13:54
Surbiton	12:32	13:02	13:32	14:02
Wimbledon	12:44	13:14	13:44	14:14
Vauxhall	12:53	13:24	13:55	14:26
London Waterloo	13:00	13:31	14:01	14:33

a How long does the **13:32** train from **Surbiton** take to reach **London Waterloo**?

1 mark

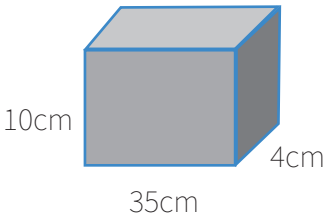
b Sara arrives at **Wimbledon** at **13:05.**
She gets on the **next** train.

What time will she arrive at **Vauxhall**?

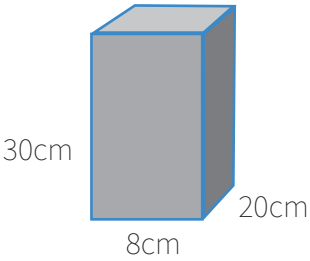
:

1 mark

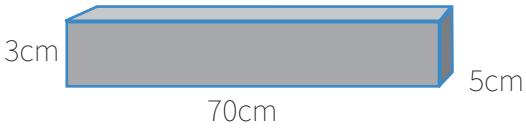
19 Here are some **cuboids**.



A



B



C

Which cuboid has the **largest** volume?

1 mark

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20 Leon walked **6km every day** last week. He always walked at a speed of **3 kilometres per hour**. How long did Leon spend walking last week?

hours

1 mark

21 A group of **six** children were playing a computer game.
Their **mean** score was **56**.

Here are the scores of five of the children:

57 51 63 52 58

What is the score of the sixth child?

1 mark

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22 There are **80 children** in Year 6.
They vote for a new year group representative.
20% vote for Emma.
35% vote for Karan.
The rest vote for Matt.

How many votes did **Matt** receive?

2 marks

23 Two families go to the cinema.
The Williams family buy **two adult** and **two child** tickets.
They pay **£39.50**.
The Hamilton family buy **two adult** tickets and **one child** ticket. They pay **£32**.

How much does **one adult** ticket cost?

£

3 marks

24a $4a + 3b = 50$

When $a = 5$, $b =$ ☐ ☐

1 mark

24b m is a whole number that is greater than 5 and less than 10

n is a whole number that is greater than 20 and less than 30

What is the smallest number $m \times n$ can be?

☐ ☐

1 mark

Key Stage 2 SATs
Mathematics Test Mark Scheme
Paper 3: Reasoning

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.

Demand Descriptors

T = Working towards expected standard

E = Working at expected standard

G = Working at greater depth within expected standard

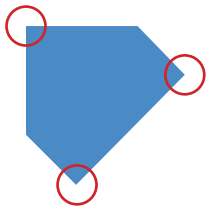
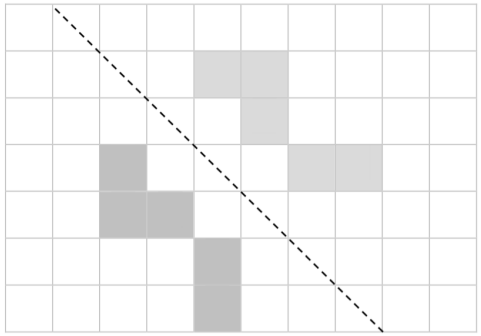
Balance of difficulty of questions in the paper

5 marks at working towards
24 marks at the expected standard
6 marks at working at greater depth

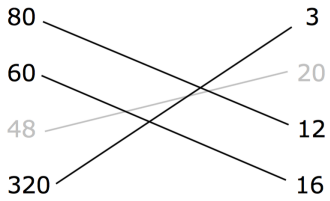
Thresholds

Working towards the expected standard: Criteria for 'working at the expected standard' have not been met.
Working at the expected standard: at least 10 of the 24 'expected' marks are obtained, together with all 5 of the working towards marks, but none of the 6 marks graded 'greater depth'. This mark is 15 out of 35.
Working at greater depth: all of the 5 working towards marks are obtained, plus at least 90% of the 'expected' marks and at least 50% of the 'greater depth' marks. This mark is 30 out of 35.

Key Stage 2 SATs
Mathematics Test Mark Scheme
Paper 3: Reasoning

Q	Required answer	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC Strand	Level of demand
1	1,409	1m		3C2	Calculation	T
2	$\frac{2}{7}$	1m		4F4	Fractions	T
3	a. 623-624 b. -30	1m 1m		3N4 4N5	Number	T
4		1m 1m	All three required for the award of 1 mark Accept any unambiguous indication of the correct answer, e.g. ticks	3G4b	Geometry	T
5	7:55	1m	Also accept 07:55 19:55	3M4c	Measures	T
6	245	1m		4N4b	Number	E
7		1m		4G2c	Geometry	G
8	850m	1m		4C8	Calculation	E

Key Stage 2 SATs
Mathematics Test Mark Scheme
Paper 3: Reasoning

Q	Required answer	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC Strand	Level of demand
9		1m	All three pairs required for the award of ONE mark	4C6c	Calculation	E
10	a. 24cm b. Accept 18x2cm, 12x3cm or 9x 4cm	1m 1m	 Also accept correct answers using decimal numbers, e.g. 7.2 x 5cm, 8 x 4.	4M7a 4M7b	Measures Measures	E
11	a. 24.08 24.108 24.18 24.2 24.27 b. $24\frac{1}{5}$	1m 1m	 	5F8 5F6a	Fractions Fractions	E G
12	45°	1m		5G4b	Geometry	E
13	Award TWO marks for the correct answer of 17 If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g. (70 x 2kg) + (30 x 3kg) = 230kg 300kg -230kg = 70kg 70 ÷ 4 = 17.5	Up to 2m		6N6	Number	E
14	Award TWO marks for all four correct as shown: **Calculation** / **✓ or x** $\frac{1}{3} \times \frac{1}{2} = \frac{2}{3}$ — x $\frac{1}{4} \div 2 = \frac{1}{8}$ — ✓ $\frac{2}{5} + \frac{1}{2} = \frac{3}{7}$ — x $6\frac{3}{4} - 4\frac{1}{4} = 2\frac{1}{4}$ — x	Up to 2m	Award ONE mark for two or three correct Accept any unambiguous indication of the correct answer, e.g. true/false	6F5a 6F5b 6F4	Fractions	E

Key Stage 2 SATs
Mathematics Test Mark Scheme
Paper 3: Reasoning

Q	Required answer	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC Strand	Level of demand
15	a. 98,064	1m		5C7a	Calculation	E
	b. 454	1m		5C7b		
16	(8,1)	1m		5P2	Position	E
17	80m	1m		5M9b	Measures	G
18	a. 29 minutes	1m	Also accept 1:24pm	5S1	Statistics	E
	b. 13:24	1m				
19	Cuboid B	1m		6M8a	Measures	G
20	14 hours	1m		5C8a	Calculation	G
21	55	1m		6S3	Statistics	G
22	Award TWO marks for the correct answer of 36 If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g. 20% of 80 = 16 35% of 80 = 28 28 + 16 = 44 80 – 44 = 36	Up to 2m		6R2	Ratio	G
23	Award THREE marks for the correct answer of £12.25 If the answer is incorrect, award TWO marks for correctly calculating that the cost of a child ticket is £7.50 Award ONE mark for evidence of an appropriate method of subtracting child costs from adults	Up to 3m		6C8	Calculation	E
24	a. 10			6A4	Algebra	E
	b. 126			6A4	Algebra	G