THIRD SPACE LEARNING

Key Stage 2 SATs Paper 2: 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 Small boxes of chocolates contain 9 chocolates. How many boxes can be made from 630 chocolates?

1 mark

2 Circle the calculation that gives the best approximation for **3.4 x 12.7**

34 x 127
3 x 12
3 x 13
3.5 x 12.5

1 mark

3 Circle the **largest** amount in each pair

80cm or 1m
7.5kg or 7005g
13mm or 0.13cm
450g or 4.05kg
2m or 200mm

2 marks

4 Write **T** or **F** in each box to indicate whether the statements given are true or false.

$\frac{1}{2} = 50\%$ ☐

$0.4 = \frac{2}{5}$ ☐

$\frac{10}{80} = 25\%$ ☐

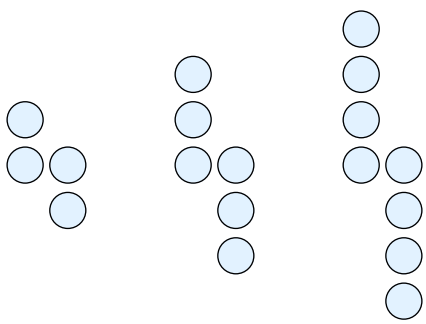
☐

1 mark

---

5 A sequence is made using counters:

Pattern number: 1 2 3



How many counters are needed to make the 6th pattern in the sequence?

☐ ☐

1 mark

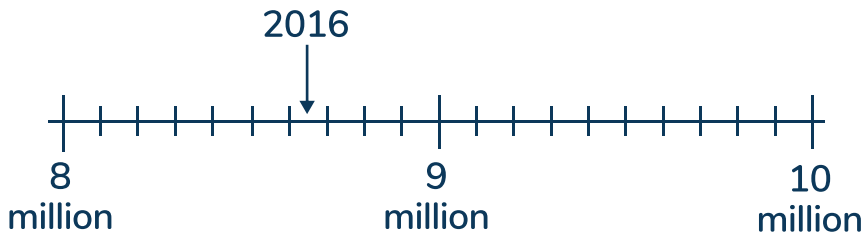
Write a formula for the number of counters (c) needed to make the nth pattern in the sequence.

$c =$ ☐ ☐

1 mark

---

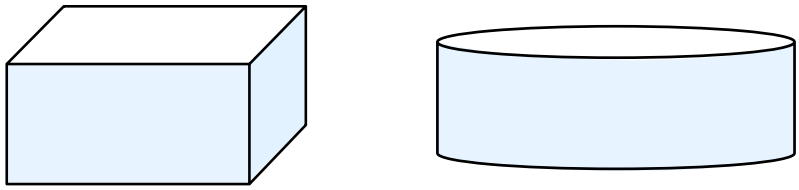
6 The population of London in 2016 was 8.63 million.
This is marked on the scale:



By 2025 the population of London is predicted to be 9.81 million. Draw an arrow to show the 2025 population on the scale above.

1 mark

7 Name these 3D shapes:



1 mark

1 mark

8 $\frac{1}{4} \times \frac{1}{2} = \frac{\square}{\square}$

1 mark

$\frac{1}{6} \div 2 = \frac{\square}{\square}$

1 mark

9 This table shows the vehicles seen by Class 6R when they did a traffic survey:

	Monday	Tuesday	Wednesday	Thursday	Friday
Cars	32	27	38	44	41
Buses	2	1	3	3	4
Vans	5	2	4	4	4
Motorbikes	2	5	3	2	3

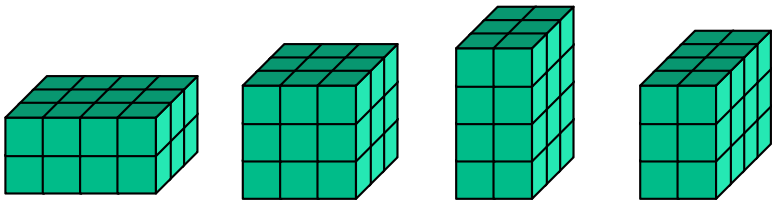
On which day were the **most** vehicles counted?

1 mark

Calculate the **mean** number of motorbikes seen.

1 mark

10 1cm³ blocks have been used to make these shapes:



(not to scale)

☐ ☐ ☐ ☐

Tick (✓) the shape that has the largest volume.

☐

1 mark

What is the length of one edge of a cube that has a volume of 64cm³?

☐ cm ☐

1 mark

---

11 Use 4 different digits to complete this multiplication calculation:

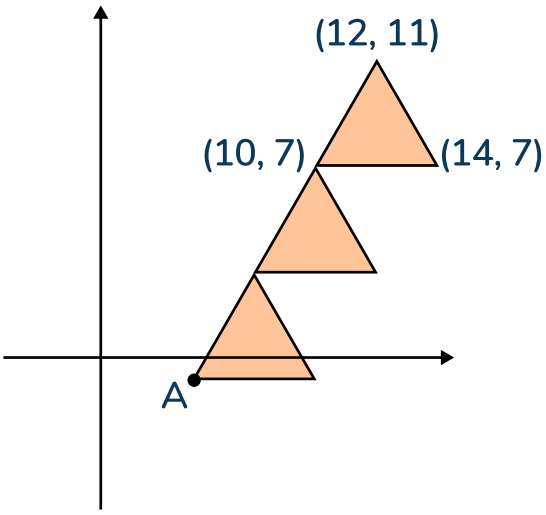
☐ × ☐ × ☐ × ☐ = 168

☐

1 mark

---

12 Three identical triangles have been drawn on a coordinate grid:



The coordinates of the vertices of one triangle have been given.
What are the coordinates of vertex A?

(,) ☐

1 mark

If these three triangles were drawn on 1cm squared paper what would the area of one triangle be?

cm² ☐

1 mark

---

13 Round the numbers to nearest 100. Circle the **two** numbers that round to 1,800

1,089 1,894 1,846 1,732 1,765 ☐

1 mark

---

14 ☐ − 9.8 = 46.3

☐ 1 mark

50 ÷ ☐ = 1.25 x 2

☐ 1 mark

---

15 3 feet is approximately 1 metre.
1 mile is approximately 1.6 kilometres.
Kate and Kenny each ran for 15 minutes.
Kenny ran 12,000 feet and Kate ran 2 miles.
How much further in kilometres did Kenny run than Kate?
Show your method.

☐ km ☐ 2 marks

---

16 This is a recipe that makes 30 chocolate chip cookies:

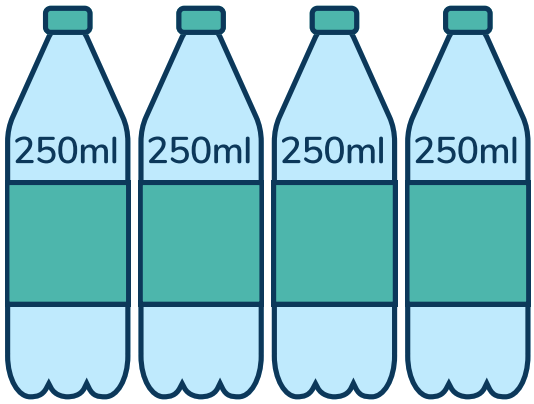
- 150g butter
- 160g sugar
- 225g plain flour
- 1 large egg
- $\frac{1}{2}$ teaspoon bicarbonate of soda
- 200g chocolate chips

Miss Watson wants to make 25 cookies for her class.
How much plain flour will she need?
Show your method.

2 marks

17

£1.05 for 4 bottles



£0.65 each

(not to scale)

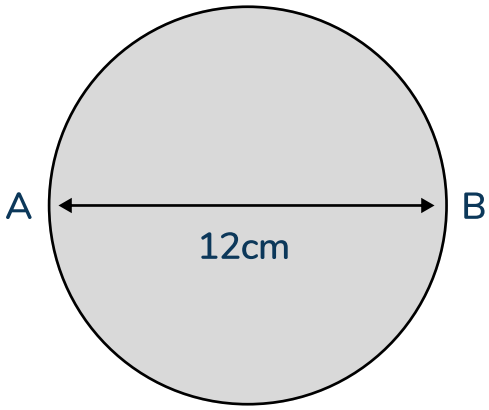
Mr Raman needs 5 litres of lemonade.

How much money does he save by buying five 1 litre bottles instead of packs of 250ml bottles?

Show your method.

2 marks

18 This circle has a diameter of 12cm:



Complete these sentences:

The circle has a radius of _____ cm

1 mark

Circle the formula that shows the relationship between the radius (**r**) and the diameter (**d**) of a circle.

$2 + d = r$ $2r = d$ $2d = r$ $r + 2 = d$

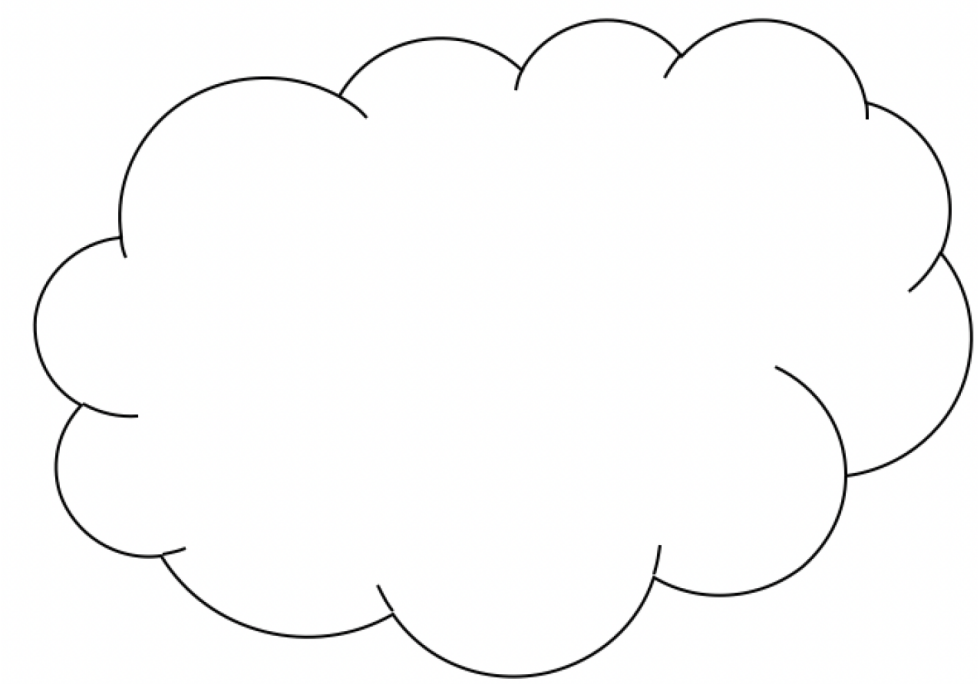
1 mark

19 One square on this multiplication grid has been shaded.
Shade any other squares that contain the same answer as this one.

x	2	4	8	3
3				
2				
12				
7				
6				

1 mark

20 Sara says, 'There are 86,400 seconds in 1 day.'
Rani says, 'There are 24,000 seconds in 1 day.'
Explain how you know Sara is correct.



1 mark

21 Harry, John and James jumped a total of 33m in a long jump competition.
Harry jumped 2.5 metres further than John.
James jumped 1 metre further than Harry.
How far did James jump?
Show your method.

3 marks

Mark Scheme

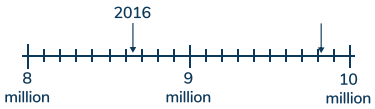
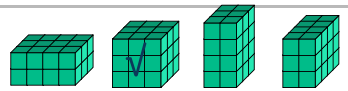
The instructions and principles of this mark scheme closely follow the guidance in the 2016 national curriculum tests.
We have deliberately not set a limited time for the test paper as a teacher may want to very it according to the standard individual children are working at.

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

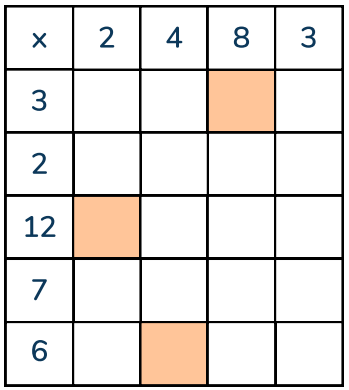
Answers

Question Number	Requirement	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
1	70	1m		4N1	Number	1
2	3 x 13 circled	1m		6C3	Calculation	2
3	Award TWO marks for all 5 correct: 80cm 1m 7.5kg 7005g 13mm 0.13cm 450g 4.05kg 2m 200mm Award ONE mark for 3 or 4 correct answers.	Up to 2m	Accept any clear indication of the correct answers.	3M1a 3M1b	Measures	2
4	T T F	1m	Accept any clear indication of true/false.	5F12	Fractions	2
5	14 $c = 2n + 2$	1m	Accept $4n - 2(n-1)$	6A3 6A3	Algebra	2

Question Number	Requirement	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
6		1m	Allow for slight inaccuracies	4C6a	Calculation	2
7	Cuboid Cylinder	1m		5G3b 5G3b	Geometry	1
8	$\frac{1}{8}$ $\frac{1}{12}$	1m 1m		6F5a 6F5b	Fractions	2 2
9	Thursday 3	1m 1m		5S1 6S3	Statistics	1 2
10	 4cm	1m 1m	Accept any clear indication of the correct answer.	6M8a 6M8a	Measures	2 3
11	2 x 3 x 4 x 7 OR 1 x 3 x 7 x 8 OR 1 x 4 x 6 x 7	1m	Digits can be in any order.	6C5	Calculation	3

Question Number	Requirement	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
12	(6,-1) 8cm²	1m 1m		6P3 6M7b	Geometry	3 3
13	1,846 AND 1,765	1m	Both answers required.	4N4b	Number	2
14	56.1 20	1m 1m		5F10 5F10	Fractions	2 3
15	Award **TWO** marks for the correct answer of 0.8km If the answer is incorrect, award **ONE** mark for evidence of an appropriate method with no more than one arithmetic error, e.g. Kenny: 12,000 ÷ 3 = 4000m = 4km Kate: 2 x 1.6 = 3.2km 4km -3.2km =	Up to 2m	Award **ONE** mark for either 4000m/4km or 3.2km as evidence of correct conversion	6M6	Measures	3

Question Number	Requirement	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
16	Award **TWO** marks for the correct answer of 187.5g If the answer is incorrect, award **ONE** mark for evidence of an appropriate method with no more than one arithmetic error, e.g. 225g ÷ 6 = 37.5g 37.5g x 5 = OR 225 ÷ 30 = 7.5g 7.5g x 25 = 187.5g	Up to 2m	Also accept 0.1875kg	6R1	Ratio and Proportion	2
17	Award **TWO** marks for £7.75. If the answer is incorrect, award **ONE** mark for evidence of an appropriate method with no more than one arithmetic error, e.g. £1.05 x 5 = £5.25 £0.65 x 5 = £3.25 Amount saved = £2.00	Up to 2m		5M9a	Measures	2

Question Number	Requirement	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
18	6cm $2\mathbf{r} = \mathbf{d}$	1m 1m		6G5 6G5	Geometry	2 1
19		1m	Both answers required for the award of **ONE** mark. Do not award the mark if other squares are shaded.	4C6a	Calculation	2
20	Award **ONE** mark for an explanation that shows that: There are 60 x 60 = 3,600 seconds in 1 hour. There are 24 hours in 1 day. 24 x 3600 = 86,400 seconds	1m	Do not accept vague, incomplete or incorrect explanations.	5M4	Measures	2

Question Number	Requirement	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
21	Award **THREE** marks for the correct answer of 12.5m. If the answer is incorrect award **TWO** mark for evidence of an appropriate method e.g. John = xm Harry = x + 2.5m James = x + 2.5m + 1m 33m = x + (x+2.5) + (x+2.5+1) 33m = 3x + 6 33m – 6 = 3x 27 = 3x 9 = x = John's jump So James = 9 + 3.5 = 12.5m	Up to 2m	Accept for **ONE** mark evidence of the correct use of algebra, e.g.: John = xm Harry = x + 2.5m James = x + 2.5m + 1m OR Accept for one mark a sensible trial and improvement method giving an incorrect answer.	5F10	Fractions	4

Do you have a group of pupils who need a boost in maths this term?

Each pupil could receive a personalised lesson every week from our specialist 1-to-1 maths tutors.

- Raise attainment
- Plug any gaps or misconceptions
- Boost confidence

Speak to us

thirdspacelearning.com

0203 771 0095

hello@thirdspacelearning.com

THIRD SPACE LEARNING