8.1 Reasoning: Measurement and Geometry: Test Pack

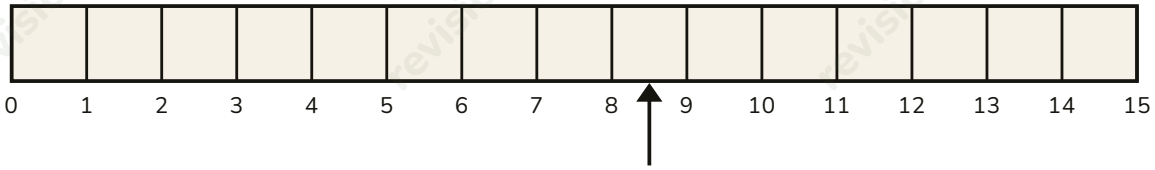
STA KS2 National Curriculum Mathematics - STA Reasoning Test Framework · Calculators not allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A ruler is marked in centimetres from 0cm to 15cm. An arrow points exactly halfway between the 8cm mark and the 9cm mark. State the measurement shown by the arrow.



(1)

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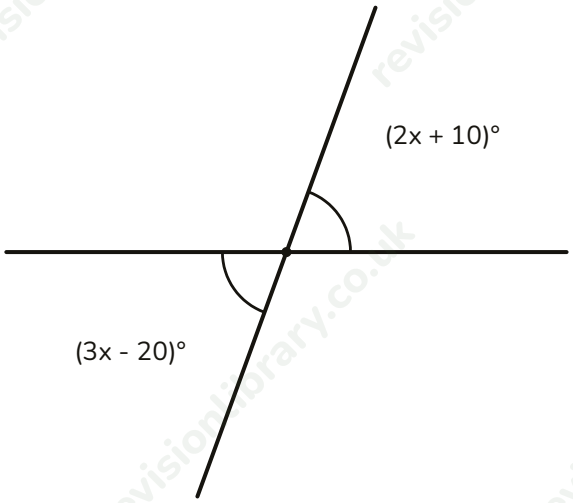
2 Complete these unit conversions.

(a) 3.6m = ____ cm **(1)**

(b) 2540mm = ____ cm **(1)**

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3 In the diagram, two straight lines cross at a single point, forming four angles. One angle is labelled (2x + 10) degrees and the angle vertically opposite it is labelled (3x - 20) degrees.



(a) Explain why the two labelled angles must be equal in size. **(1)**

(b) Use this fact to form and solve an equation to find the value of x. **(3)**

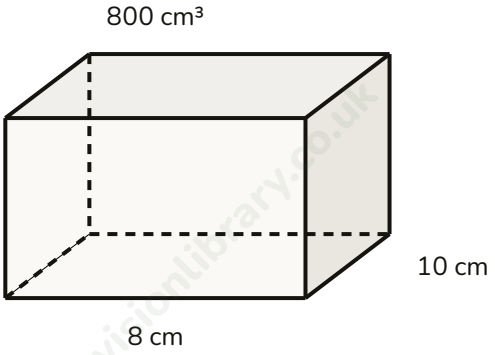
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4 A cuboid has a volume of 800 cm cubed. Its length is 8 cm and its width is 10 cm.

What is its height?

Answer: ___ cm

Diagram NOT accurately drawn



(2)

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5 Convert 7.8 km to m.

Answer: ___ m

(1)

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6 Mia buys a bag of potatoes weighing 4.8 kg and a bag of carrots weighing 459 g.

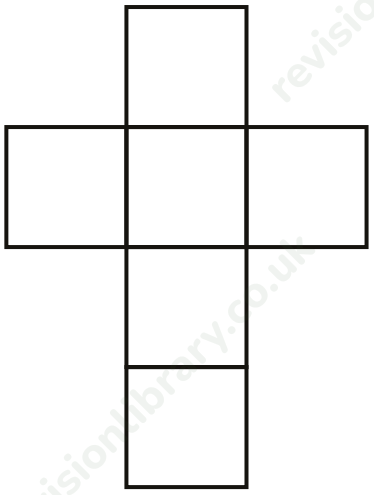
What is the total mass in kg?

Answer: ___ kg

(2)

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7 A net is made from 6 identical squares arranged in a cross (plus-sign) shape. Name the 3D shape that this net folds up to make.



(1)

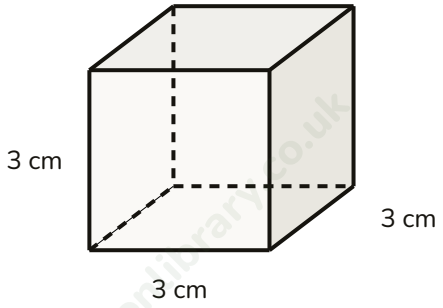
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8 A box is 3 cm long, 3 cm wide and 3 cm high. It is filled with 1 cm cubes.

How many cubes are needed to fill the box?

Answer: ___

Diagram NOT accurately drawn



(2)

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9 Angles on a straight line add up to 180 degrees. Two angles on a straight line are 27 degrees and 111 degrees. A third angle fills the rest of the line.

What is the third angle?

Answer: ___ degrees

(2)

---

10 A right angle is split into two angles. One of them is 47 degrees.

What is the other?

Answer: ___ degrees

(1)

---

11 An angle measures 39 degrees. Is it acute, obtuse or reflex?

Answer: ___

(1)

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12 A coach finishes at 10:45 after taking 3 hours 45 minutes.

What time did it start? Write your answer as a 24-hour clock time.

Answer: ___

(2)

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13 An isosceles triangle has two equal angles of 46 degrees each.

What is the third angle?

Answer: ___ degrees

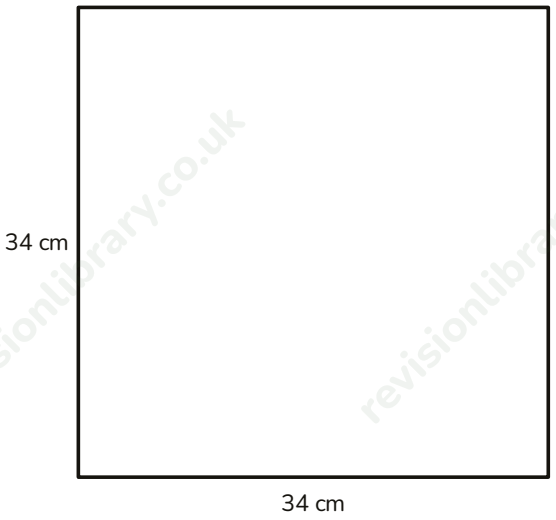
(2)

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14 A square has sides of length 34 cm.

What is its perimeter?

Answer: ___ cm



(1)

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15 A coach leaves at 06:00 and arrives at 11:00.

How many minutes does it take?

Answer: ___ minutes

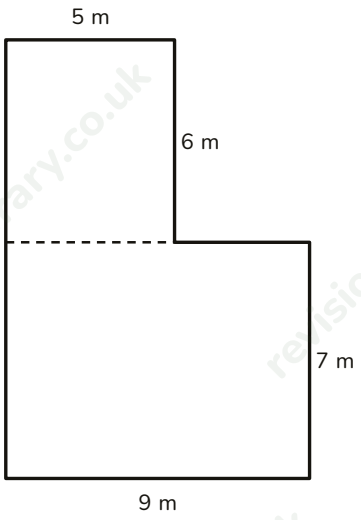
(2)

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16 An L-shape is made from two rectangles joined together. The first rectangle is 9 m by 7 m. The second is 5 m by 6 m.

What is the total area of the L-shape in square metres?

Answer: ___



(2)

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17 Point A is at (1, 3). It is translated by the vector (-1, 0), where the first number is the move to the right and the second is the move up.

What are the coordinates of the image of A?

Answer: (___, ___)

(2)

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18 Use 1 foot = 30 cm.

A strip of card is 9 feet long. How long is it in cm?

Answer: ___ cm

(2)

---

19 Three angles meet at a point. Two of the angles are 95 degrees and 140 degrees. Calculate the size of the third angle.

(2)

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20 A rectangle has an area of 16 square metres. Its length is 8 m.

What is its width?

Answer: ___ m



8 m

16 m²

(2)

---

21 Which is bigger, 8.7 km or 8,821 m?

Answer: ___

(2)

---

22 An angle on a diagram is 278 degrees. What is the size of the angle needed to complete a full turn?

Answer: ___ degrees

(1)

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23 Look at these three statements about quadrilaterals. For each one, write True or False.

(i) A square is always a rectangle. **(1)**

(ii) A rhombus is always a square. **(1)**

(iii) A (non-square) rectangle always has four lines of symmetry. **(1)**

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24 Layla buys a bag of potatoes weighing 1.3 kg and a bag of carrots weighing 421 g.

What is the total mass in kg?

Answer: ___ kg

(2)

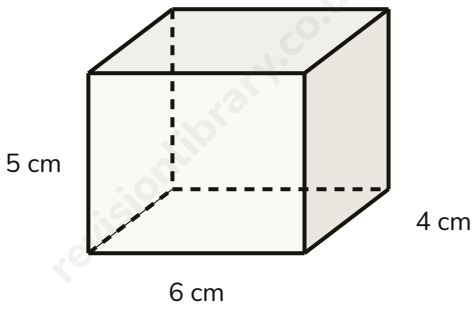
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25 A box is 6 cm long, 4 cm wide and 5 cm high. It is filled with 1 cm cubes.

How many cubes are needed to fill the box?

Answer: ___

Diagram NOT accurately drawn



(1)

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Mark scheme · 8.1 Reasoning: Measurement and Geometry: Test Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

Question 1

8.5cm oe cao — **B1**

Answer: **8.5cm**

Question 2

(a) 360cm cao — **B1**

(a) Answer: **360cm**

(b) 254cm cao — **B1**

(b) Answer: **254cm**

Question 3

(a) states that vertically opposite angles (formed when two straight lines cross) are equal — **B1**

(a) Answer: **Vertically opposite angles are equal**

(b) forms the equation 2x + 10 = 3x - 20 ft — **M1**

(b) rearranges correctly, e.g. 10 + 20 = 3x - 2x — **M1**

(b) x = 30 cao — **A1**

(b) Answer: **x = 30**

Question 4

8 x 10 = 80 seen — **M1**

10 cm cao — **A1**

Answer: **10 cm**

Question 5

7,800 m cao — **B1**

Answer: **7,800 m**

Question 6

459 g = 0.459 kg seen — **M1**

5.259 kg cao — **A1**

Answer: **5.259 kg**

Question 7

cube oe cao — **B1**

Answer: **Cube**

Question 8

volume formula seen — **M1**

27 cao — **A1**

Answer: **27**

Question 9

138 seen — **M1**

42 degrees cao — **A1**

Answer: **42 degrees**

Question 10

43 degrees cao — **B1**

Answer: **43 degrees**

Question 11

acute cao — **B1**

Answer: **acute**

Question 12

subtracts hours then minutes — **M1**

07:00 cao — **A1**

Answer: **07:00**

Question 13

92 seen — **M1**

88 degrees cao — **A1**

Answer: **88 degrees**

Question 14

136 cm cao — **B1**

Answer: **136 cm**

Question 15

counts on to the next hour or minutes calculation — **M1**

300 minutes cao — **A1**

Answer: **300 minutes**

Question 16

finds the area of each rectangle — **M1**

93 square metres cao — **A1**

Answer: **93 square metres**

Question 17

adds the vector — **M1**

(0, 3) cao — **A1**

Answer: **(0, 3)**

Question 18

multiplies by the conversion — **M1**

270 cm cao — **A1**

Answer: **270 cm**

Question 19

360 - 95 - 140 oe — **M1**

125 degrees cao — **A1**

Answer: **125 degrees**

Question 20

divides area by length — **M1**

2 m cao — **A1**

Answer: **2 m**

Question 21

converts to the same unit — **M1**

8,821 m cao — **A1**

Answer: **8,821 m**

Question 22

82 degrees cao — **B1**

Answer: **82 degrees**

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Question 23

(i) True, with valid reason (a square has 4 right angles and opposite sides equal) **B1**

(i) Answer: **True**

(ii) False, with valid reason (a rhombus need not have right angles) **B1**

(ii) Answer: **False**

(iii) False, with valid reason (a non-square rectangle has exactly 2 lines of symmetry) **B1**

(iii) Answer: **False**

Question 24

421 g = 0.421 kg seen **M1**

1.721 kg cao **A1**

Answer: **1.721 kg**

Question 25

120 cao **B1**

Answer: **120**

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