Name:

Maths Assessment Year 6 Term 2: Measurement

You will need a ruler for this assessment.

1. Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.

2. Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places.

3. Convert between miles and kilometres.

4. Recognise that shapes with the same areas can have different perimeters and vice versa.

5. Recognise when it is possible to use formulae for area and volume of shapes.

6. Calculate the area of parallelograms and triangles.

7. Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].

Name: Date:

60 total marks

Maths Assessment Year 6 Term 2: Measurement

1. Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.

a) A teacher makes jugs of squash for a school sports day. She uses a 330ml bottle of squash. She empties the bottle of squash into the jug and fills the bottle with water 6 times, which is also added to the jug.

How much squash is made in the jug? Write your answer in litres.

l

1 mark

b) A tin of baked beans weighs 532g. The tins are sold in packs of 4.

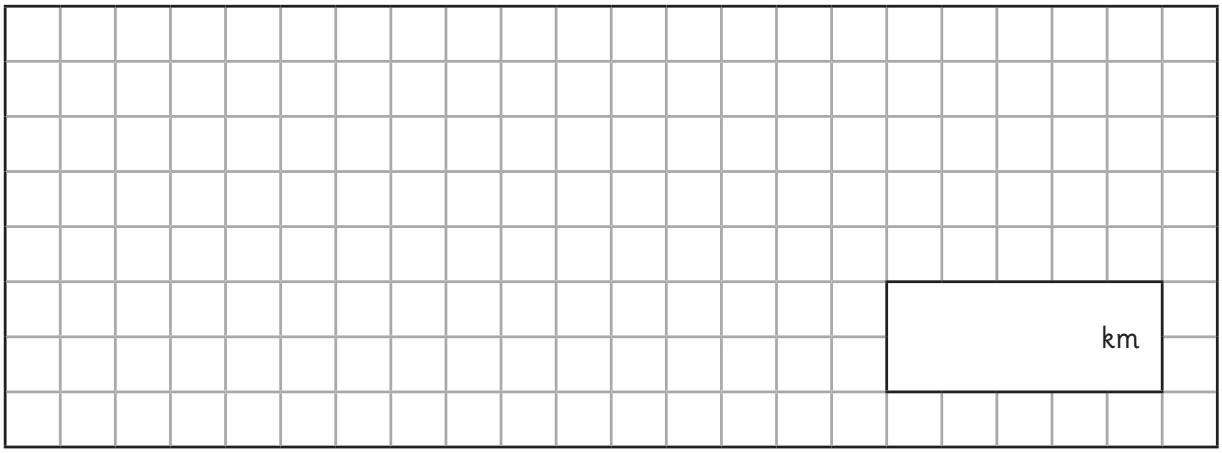
How much would 2 packs weigh? Write your answer in kilograms.

kg

1 mark

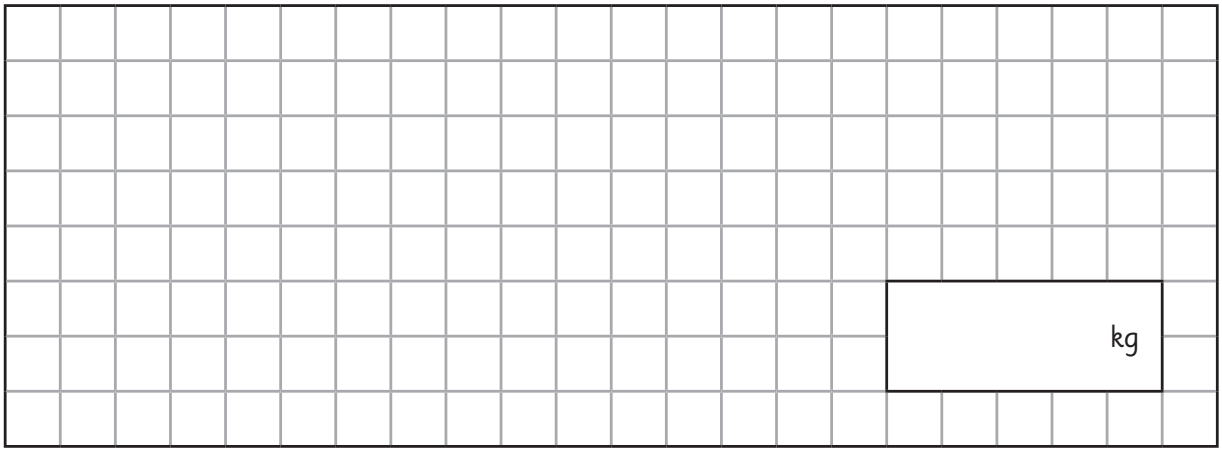
Total for this page

c) India walks 246m to school each day and the same distance home. In a five day week, how far will India walk to and from school? Give you answer in kilometres.



1 mark

d) A pencil weighs 9g and the box for 12 pencils weighs 2g. Calculate the weight of a pack of 20 boxes of 12 pencils. Give your answer in kilograms.



2 marks

2. Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places.

a) Circle true or false to show whether each statement is correct:

4782ml	=	4.782l	True	False
6.78m	=	678cm	True	False
8080mm	=	8.08m	True	False
0.003kg	=	30g	True	False
3mm	=	0.03cm	True	False

5 marks

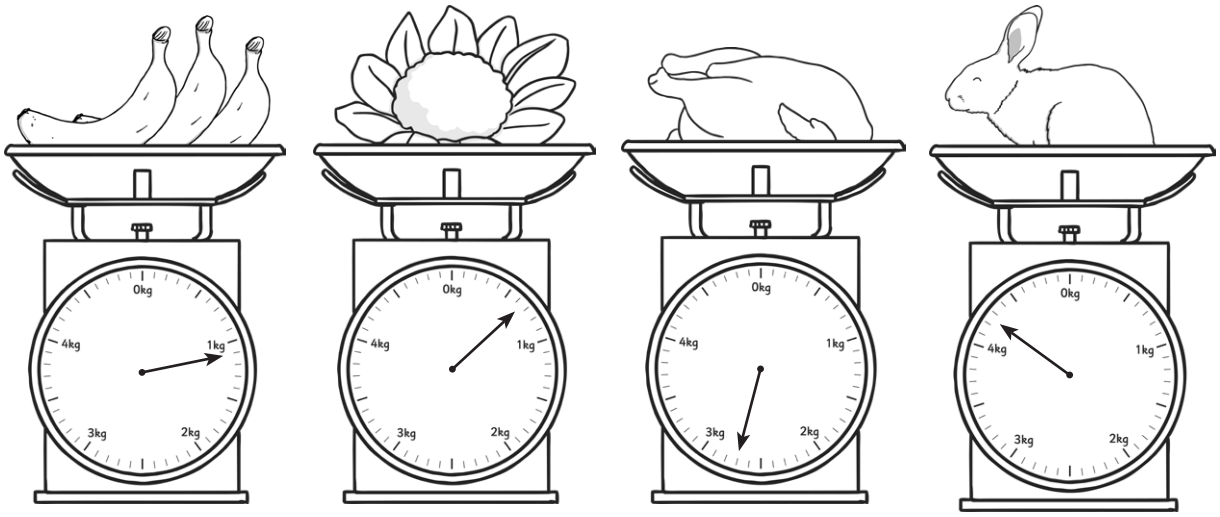
Total for this page

b) Complete the following table to identify the equivalent lengths.

Millimetres	Centimetres	Metres
56 mm		
		1.035 m
	49cm	

6 marks

c) Write the mass shown on these scales, using both kilograms and grams:



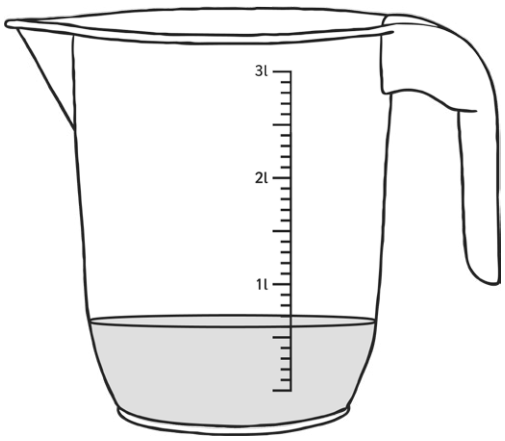
	Mass in grams (for example 500g)	**Mass in kilograms** (for example 0.5 kg)
Bananas		
Chicken		
Rabbit		
Broccoli		

4 marks

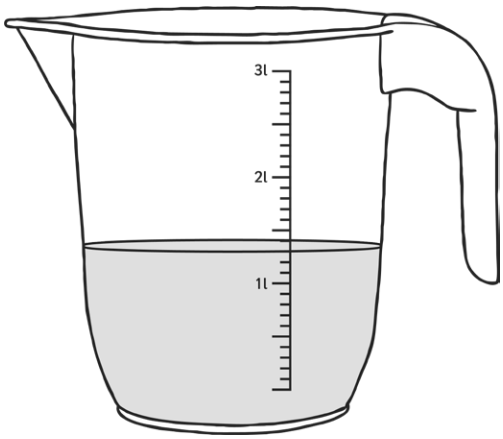
Total for this page

d) Write the volume of water in each jug, in both millilitres and litres

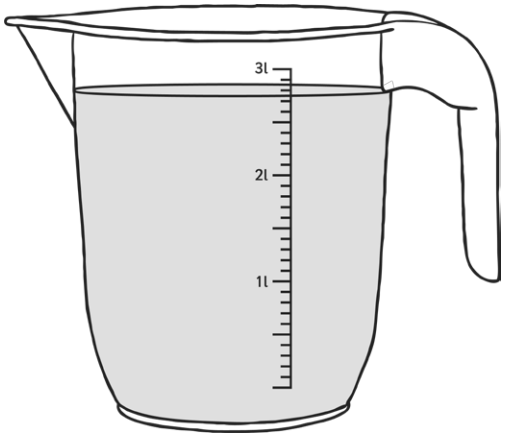
i.



ii.



iii.



	Millilitres (for example 1000ml)	**Litres** (for example 1l)
i.		
ii.		
iii.		

3 marks

e)

How many minutes are in three and a half hours?	
How many minutes is 105 seconds?	
120 minutes is equivalent to how many hours?	
How many minutes are equivalent to a quarter of an hour?	
How many seconds are in 4 minutes?	

5 marks

Total for this page

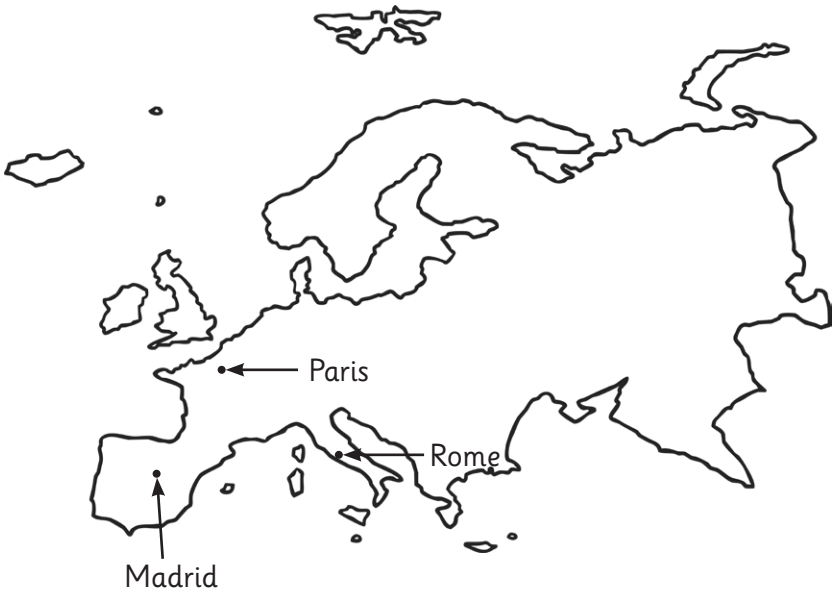
3. Convert between miles and kilometres.

a) Identify the equivalent distances in miles and kilometres, rounded to the nearest whole number, by completing the table below:

Distance in miles	Distance in kilometres
5 miles	
	24km
20 miles	
35 miles	
	80km

5 marks

b) This map shows the location of some cities in Europe.



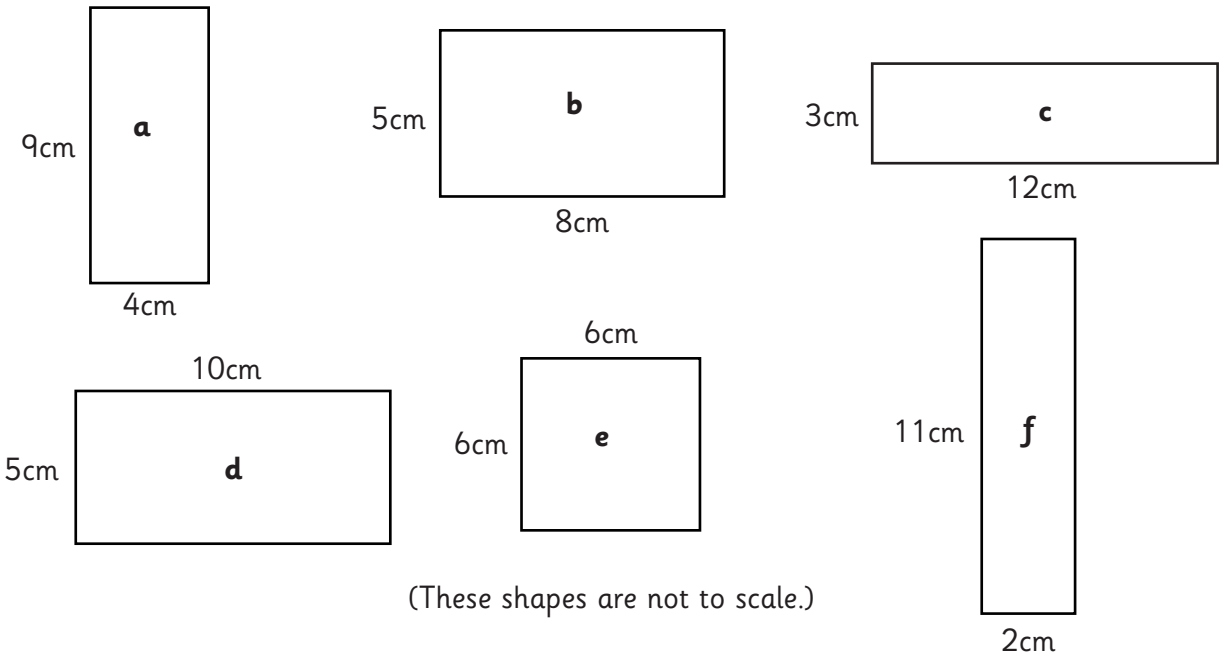
Journey	Journey in miles	Journey in kilometres
Paris to Madrid	800 miles	
Madrid to Berlin	1450 miles	
Rome to Paris		1040km

3 marks

Total for this page

4. Recognise that shapes with the same areas can have different perimeters and vice versa.

a) Look at these shapes. The shapes are not drawn to scale.



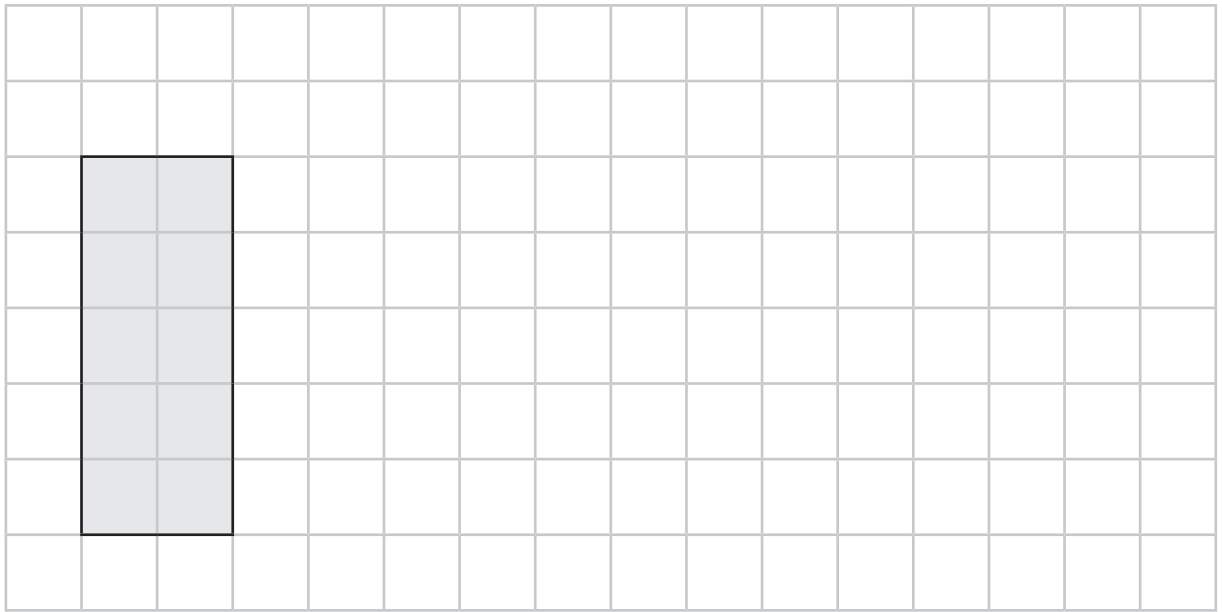
(These shapes are not to scale.)

Which three shapes have the same area? ....

Which two shapes have the same perimeter? ....

2 marks

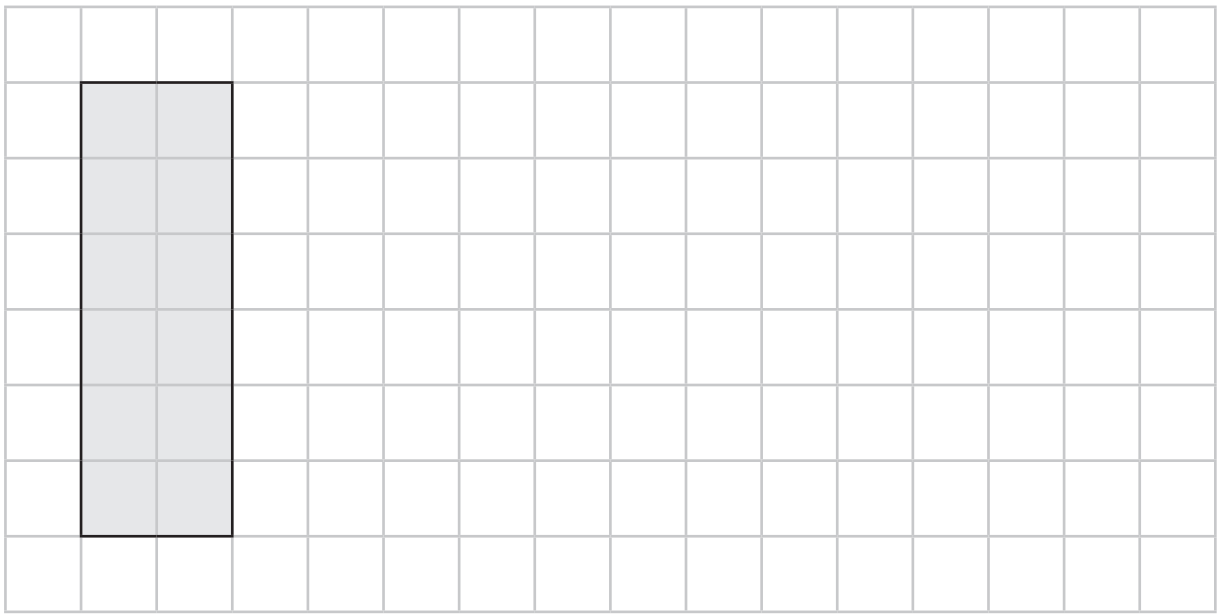
b) Draw a different rectangle with the same area as the one drawn in this grid.



1 mark

Total for this page

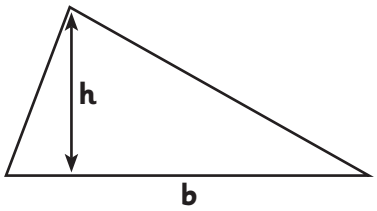
c) Draw a square with the same perimeter as the one drawn in this grid.



1 mark

5. Recognise when it is possible to use formulae for area and volume of shapes.

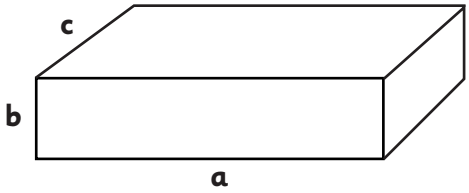
a) Circle any of these formulae you could use to calculate the area of this triangle.



bh $\frac{1}{2}$ x bh 2(b + h) $\frac{bh}{2}$ 2b + 2h

2 marks

b) Here is a cuboid:



i. Write the formula that could be used to calculate the volume of the cuboid.

1 mark

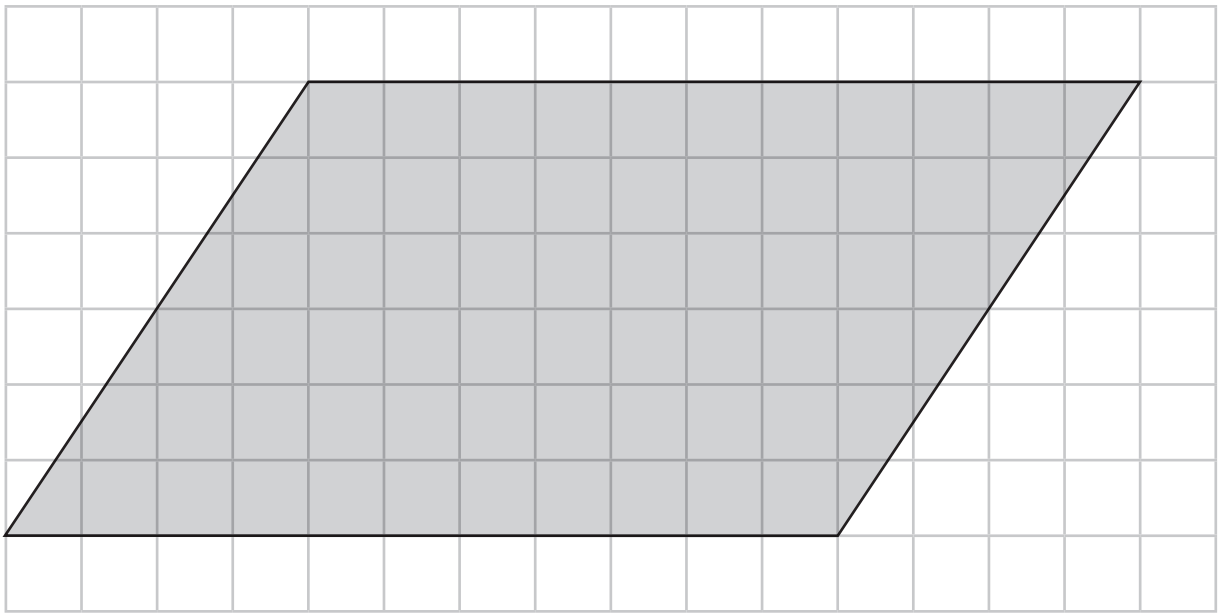
ii. Write the formula that could be used to calculate the surface area of the cuboid.

1 mark

Total for this page

6. Calculate the area of parallelograms and triangles.

a) Calculate the area of this parallelogram.



cm²

1 mark

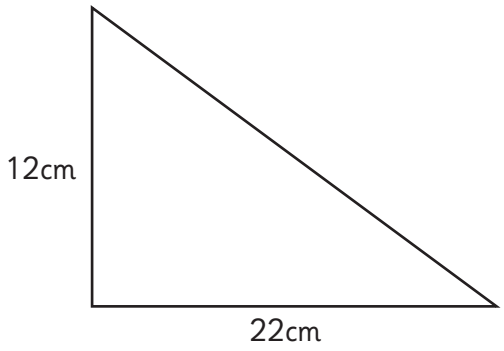
b) Draw a parallelogram on this grid with an area of 40cm².

2 marks

Total for this page

c) Calculate the area of this triangle:

This shape is **not** to scale.

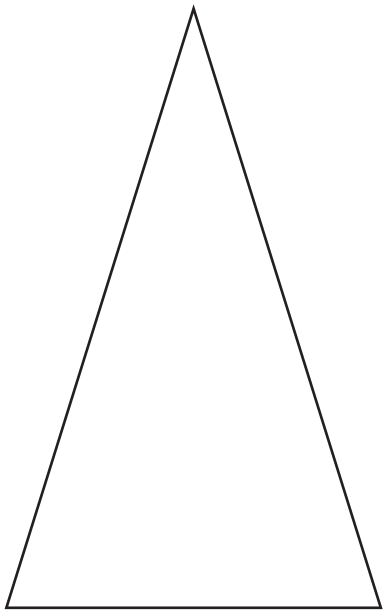


cm²

2 marks

d) Calculate the area of this triangle:

This shape is to scale. You can use a ruler for this question.



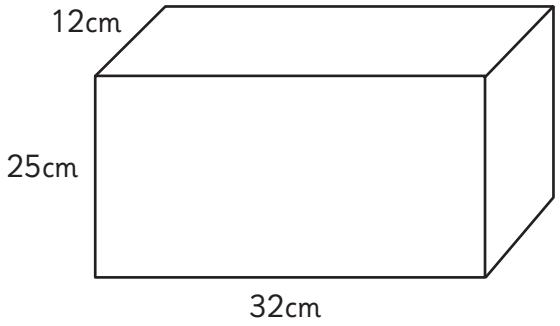
cm²

2 marks

Total for this page

7. Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].

a) Here is a parcel. Janek needs to know its volume to know the cost of sending the parcel.



The parcel measures 12 cm x 25 cm x 32 cm.

Parcels that are larger than 10 000cm^3 cost £12.

Parcels that are smaller than 10 000cm^3 cost £8.

How much will Janek pay for sending this parcel?

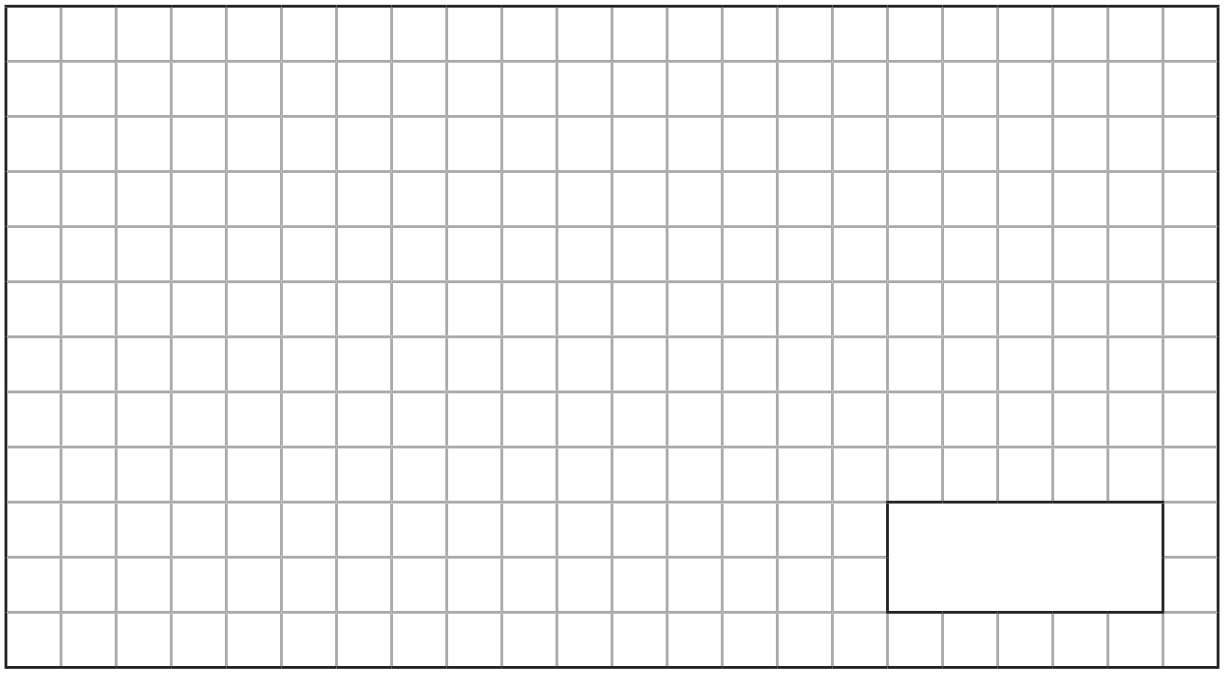
2 marks

Total for this page

b) A hotel wants to install a swimming pool. The hotel has to choose between these 3 sizes of pool, but want to choose the pool that uses the least amount of water.

Pool	Length	Width	Depth
A	12	8	2
B	10	7	3
C	9	6	4

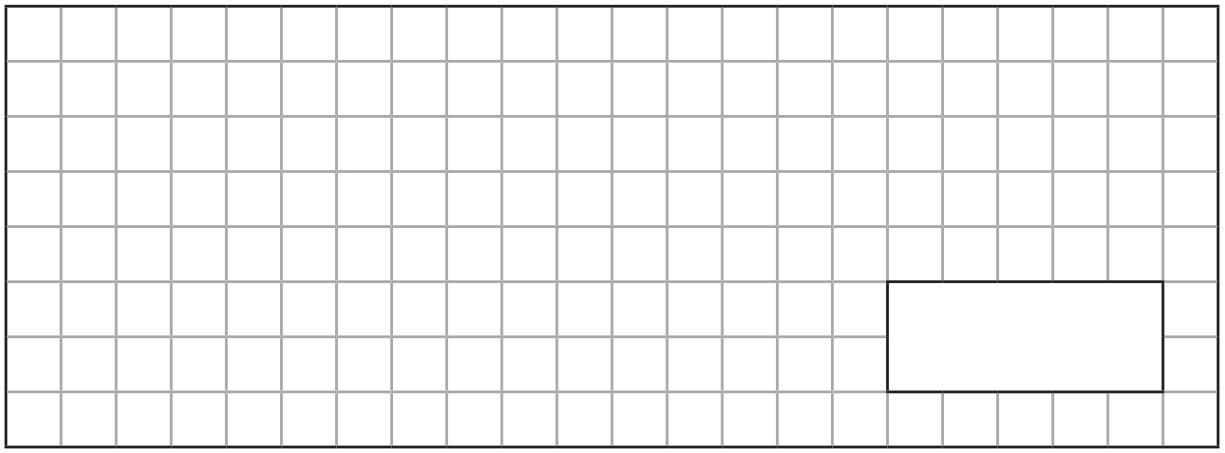
Which pool has the smallest volume?



3 marks

c) A cube has a volume of 64mm^3

i. What is the length of one side of the cube?



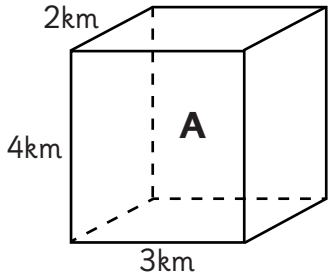
1 mark

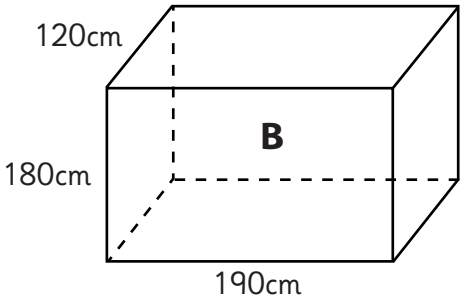
ii. Is the cube smaller or larger than a cubic centimetre?

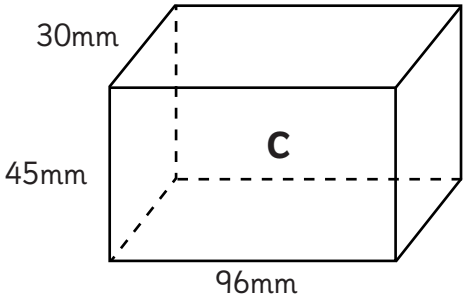
1 mark

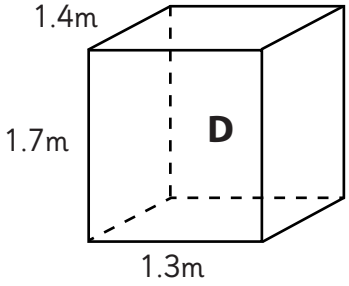
Total for this page

d) Here are 4 cuboids:









Order the cuboids by volume from smallest to largest.

largest smallest

2 marks

Total for this page

Answer Sheet: Maths Assessment Year 6 Term 2: Measurement

<table>
<tr><th>question</th><th>answer</th><th>marks</th><th>notes</th></tr>
<tr><td colspan="4">1. Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.</td></tr>
<tr><td>a</td><td>2.31 l</td><td>1</td><td></td></tr>
<tr><td>b</td><td>4.256kg</td><td>1</td><td></td></tr>
<tr><td>c</td><td>2.46km</td><td>1</td><td></td></tr>
<tr><td>d</td><td>2.2kg</td><td>2</td><td>2 marks for the correct answer. 1 mark for an incorrect answer with only 1 mistake in calculating.</td></tr>
<tr><td colspan="4">2. Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places.</td></tr>
<tr><td>a</td><td>True
True
True
False
False</td><td>5</td><td>1 mark for each correct answer.</td></tr>
<tr><td>b</td><td><table><tr><td>Millimetres</td><td>Centimetres</td><td>Metres</td></tr><tr><td>56mm</td><td>5.6cm</td><td>0.056m</td></tr><tr><td>1035mm</td><td>103.5cm</td><td>1.035m</td></tr><tr><td>490mm</td><td>49cm</td><td>0.49m</td></tr></table></td><td>6</td><td>Award one mark for each box correctly completed.</td></tr>
<tr><td>c</td><td><table><tr><td></td><td>Mass in grams</td><td>Mass in kilograms</td></tr><tr><td>Bananas</td><td>1100g</td><td>1.1kg</td></tr><tr><td>Chicken</td><td>2700g</td><td>2.7kg</td></tr><tr><td>Rabbit</td><td>4250g</td><td>4.25kg</td></tr><tr><td>Cauliflower</td><td>650g</td><td>0.65kg</td></tr></table></td><td>4</td><td rowspan="2">Award one mark for each pair correctly matched.</td></tr>
<tr><td>d</td><td><table><tr><td></td><td>Millilitres</td><td>Litres</td></tr><tr><td>i</td><td>600ml</td><td>0.6l</td></tr><tr><td>ii</td><td>1300ml</td><td>1.3l</td></tr><tr><td>iii</td><td>2750ml</td><td>2.75l</td></tr></table></td><td>3</td></tr>
<tr><td>e</td><td><table><tr><td>How many minutes are in three and a half hours?</td><td>210 minutes</td></tr><tr><td>How many minutes is 105 seconds?</td><td>$1\frac{3}{4}$ or 1.75 minutes</td></tr><tr><td>120 minutes is equivalent to how many hours?</td><td>2 hours</td></tr><tr><td>How many minutes is equivalent to a quarter of an hour?</td><td>15 minutes</td></tr><tr><td>How many seconds are in 4 minutes?</td><td>240 seconds</td></tr></table></td><td>5</td><td></td></tr>
</table>

<table>
<tr><th>question</th><th>answer</th><th>marks</th><th>notes</th></tr>
<tr><td colspan="4">3. Convert between miles and kilometres.</td></tr>
<tr><td>a</td><td>
<table>
<tr><td>Distance in miles</td><td>Distance in kilometres</td></tr>
<tr><td>5 miles</td><td>8km</td></tr>
<tr><td>15 miles</td><td>24km</td></tr>
<tr><td>20 miles</td><td>32km</td></tr>
<tr><td>35 miles</td><td>56km</td></tr>
<tr><td>50 miles</td><td>80km</td></tr>
</table>
</td><td>5</td><td></td></tr>
<tr><td>b</td><td>
<table>
<tr><td>Journey</td><td>Journey in miles</td><td>Journey in kilometres</td></tr>
<tr><td>Paris to Madrid</td><td>800 miles</td><td>1280km</td></tr>
<tr><td>Madrid to Berlin</td><td>1450 miles</td><td>2320km</td></tr>
<tr><td>Rome to Paris</td><td>650 miles</td><td>1040km</td></tr>
</table>
</td><td>3</td><td></td></tr>
<tr><td colspan="4">4. Recognise that shapes with the same areas can have different perimeters and vice versa.</td></tr>
<tr><td>a</td><td>same area: a, c, e
same perimeter: a, b, f</td><td>2</td><td></td></tr>
<tr><td>b</td><td>Any rectangle with an area of 10cm^2, e.g. 10 x 1,</td><td>1</td><td>Allow the 2cm x 5cm rectangle in a different orientation.</td></tr>
<tr><td>c</td><td>Square of 4cm x 4cm</td><td>1</td><td></td></tr>
<tr><td colspan="4">5. Recognise when it is possible to use formulae for area and volume of shapes.</td></tr>
<tr><td>a</td><td>½ x bh and $\frac{bh}{2}$</td><td>2</td><td>1 mark for each.
1 mark deducted for each incorrect answer.</td></tr>
<tr><td>b i)</td><td>abc</td><td>1</td><td></td></tr>
<tr><td>b ii)</td><td>2ab + 2ac + 2bc or 2(ab + ac + bc)</td><td>1</td><td></td></tr>
<tr><td colspan="4">6. Calculate the area of parallelograms and triangles.</td></tr>
<tr><td>a</td><td>66cm^2</td><td>1</td><td></td></tr>
<tr><td>b</td><td>any parallelogram with area 40cm^2
e.g. base 8cm, height 5cm or base 10cm, height 4cm</td><td>2</td><td></td></tr>
<tr><td>c</td><td>132cm^2</td><td>2</td><td></td></tr>
<tr><td>d</td><td>20cm^2</td><td>2</td><td></td></tr>
</table>

question	answer	marks	notes
7. Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].			
a	£8 as volume = 9600cm^3	2	2 marks for a correct answer. 1 mark for correctly calculating the volume as 9 600 cm3
b	Pool A has the smallest volume **A = 192m^3**, B = 210m^3, C = 216m^3	3	2 marks for a correct answer. 2 marks for an incorrect answer, but evidence that 2 of the pools' volume was calculated correctly. 1 mark for calculating the volume of 1 of the pools.
c i)	4 mm	1	
c ii)	smaller	1	
d	A B D C	2	2 marks for correct answer. 1 mark if only 1 in the incorrect place (e.g. ACBD, BACD etc.) Note the volumes do not have to be calculated to find the answer.
		Total 60	