

**Q1.** (a) Write down a sensible **metric** unit that can be used to measure

(i) the height of a tree,

.....

(ii) the weight of a person.

.....

**(2)**

(b) Change 2 centimetres to millimetres.

..... millimetres

**(1)**

**(Total 3 marks)**

**Q2.** A plane takes 30 seconds to fly a distance of 8 kilometres.

Work out the average speed of the plane, in miles per hour.

..... miles per hour

**(Total 3 marks)**

**Q3.**      Jemilla goes swimming.

She swims 64 lengths of a swimming pool.

Each length is 25 m long.

(a)      Work out how far Jemilla swims.

Give your answer in kilometres.

..... kilometres

**(3)**

The swimming pool is 25 m long by 10 m wide by 2.5 m deep.

(b)      How many litres of water does it contain?

..... l

**(3)**  
**(Total 6 marks)**

Q4.



The picture shows a man standing next to a flagpole.  
The man is of normal height.  
The man and the flagpole are drawn to the same scale.

- (a) Write down an estimate for the height, in metres, of the man.

..... m

(1)

- (b) Work out an estimate for the height, in metres, of the flagpole.

..... m

(2)  
(Total 3 marks)

- Q5.** (a) Complete the table by writing a sensible **metric** unit for each measurement.  
The first one has been done for you.

The length of the river Nile	6700.....kilometres.....
The height of the world's tallest tree	110.....
The weight of a chicken's egg	70.....
The amount of petrol in a full petrol tank of a car	40.....

(3)

- (b) Change 4 metres to centimetres.

..... cm

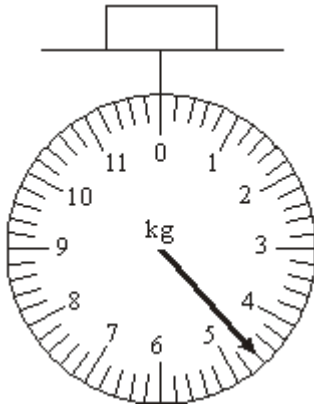
(1)

- (c) Change 1500 grams to kilograms.

..... kg

(1)

**(Total 5 marks)****Q6.**



(a) Write down the weight in kg shown on this scale.

..... kg

(1)

(b) (i) How many pounds are there in 1 kg?

..... pounds

(1)

The weight of a baby is 5 kg.

(ii) Change 5 kg to pounds.

..... pounds

(1)

(Total 3 marks)

- Q7.** (a) Write down a sensible **metric** unit for measuring
- (i) the distance from London to Paris,

.....  
(ii) the amount of water in a swimming pool.  
.....

(2)

(b) (i) Change 5 centimetres to millimetres.

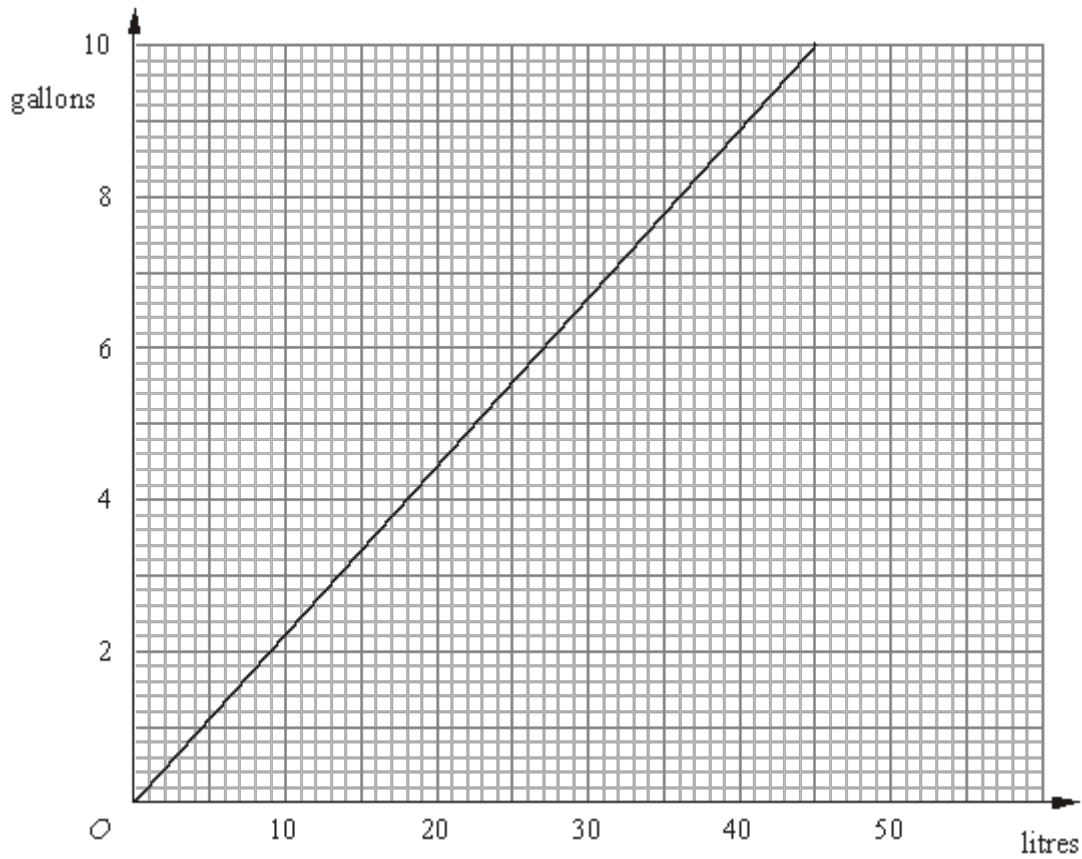
..... mm

(ii) Change 4000 grams to kilograms.

..... kg

(2)  
(Total 4 marks)

**Q8.** The graph can be used to convert between gallons and litres.



The diagram shows a central heating oil tank.



The oil tank is in the shape of a cylinder of length 180 cm and radius 60 cm.

The oil tank contains 200 gallons of oil.

- (a) Is the oil tank more or less than  $\frac{1}{2}$  full?

.....

(5)

The oil has a density of  $0.85 \text{ g/cm}^3$ .

(b) Work out, in kg, the mass of the oil in the tank.

..... kg

(3)  
(Total 8 marks)



M1.

	Working	Answer	Mark	Additional Guidance
(a)(i)		metre	2 1	<b>B1</b> for metre or m
(ii)		kilogram		<b>B1</b> for kilogram or kg or Newton or N
(b)	$2 \times 10$	20		<b>B1</b> for 20 cao
<b>Total for Question: 3 marks</b>				

M2.

Working	Answer	Mark	Additional Guidance
8 km per 30 seconds = 16 km per minute = $16 \times 60 = 960$ km per hour  $960 \text{ km/hr} \times 5 \div 8 = 600$ miles per hour	600	3	<b>M1</b> convert to km/h by $\times 2 \times 60$ or 960 seen or use of speed = distance $\div$ time <b>M1</b> convert distance to miles by $\times 5 \div 8$ or sight of 5 miles <b>A1</b> cao
<b>Total for Question: 3 marks</b>			

M3.

	Working	Answer	Mark	Additional Guidance
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(a)	$64 \times 75\text{m} = 4800\text{m}$ $4800 \div 1000$	4.8 km	3	<b>M1</b> for $64 \times 75$ <b>M1</b> for " $64 \times 75$ " $\div 1000$ <b>A1</b> cao
(b)	$\text{Vol} = 25 \times 10 \times 2.5 = 625\text{m}^3$ $625 \times 1000$	625 000	3	<b>M1</b> for attempt at finding the volume <b>M1</b> for attempt to find the number of l in $1\text{m}^3$ or $1\text{m}^3 = 1000\text{l}$ <b>A1</b> cao
<b>Total for Question: 6 marks</b>				

**M4.**

	Working	Answer	Mark	Additional Guidance
(a)		1.5-2.0	1	<b>B1</b> for height 1.5-2.0 inclusive
(b)	Height $\times 4$	6-8	2	<b>M1</b> for $\times 4$ or "height" $\times 4$ <b>A1</b> 6-8 inclusive <b>OR</b> ft (a) $\times 4$
<b>Total for Question: 3 marks</b>				

**M5.**

	Working	Answer	Mark	Additional Guidance
(a)		metres (m) grams (g) litres (l)	3	<b>B3</b> all correct, accept abbreviations ( <b>B1</b> for each one correct)

(b)	$4 \times 100$	400	1	<b>B1</b> for 400 cao
(c)	$1500 \div 1000$	1.5	1	<b>B1</b> for 1.5 cao
<b>Total for Question: 5 marks</b>				

**M6.**

	Answer	Mark	Additional Guidance
(a)	4.6	1	<b>B1</b> cao
(b)(i)	$2 \rightarrow 2.4$	2	<b>B1</b> for $2 \rightarrow 2.4$
(ii)	$10 \rightarrow 12$		<b>B1</b> for $10 \rightarrow 12$ or $5 \times$ '(i)' ft
<b>Total for Question: 3 marks</b>			

**M7.**

	Answer	Mark	Additional Guidance
(a)(i)	Kilometres	2	<b>B1</b> (accept km)
(ii)	Litres		<b>B1</b> for litres, (accept kilolitres, $m^3$ or appropriate abbreviations)
(b)(i)	50	2	<b>B1</b> cao
(ii)	4		<b>B1</b> cao
<b>Total for Question: 4 marks</b>			

M8.

		Working	Answer	Mark	Additional Guidance
FE	(a)	1 gallon = 4.54 litres, 200 gallons = 908 litres = 908000 cm <sup>3</sup> Vol of tank $60^2 \times \pi \times 180 =$ $2035752.04 \text{ cm}^3$  $908000 < 1017876.02$  <b>OR</b> Vol of tank $60^2 \times \pi \times 180 =$ $2035752.04 \text{ cm}^3$ Half vol of tank = 1017876.02 cm <sup>3</sup> = 1017.876...litres  $1017.876 \div 4.54 = 224$ gallons  $224 > 200$	No	5	Response may convert into gallons, litres, or cm <sup>3</sup>  Calculations may be performed in different orders  <b>M1</b> Using formulae to find volume of tank  <b>B1</b> Converts between litres and cubic centimetres  <b>M1</b> reads off graph for 1l, 2l, 4l, 5l or 10 litres within tolerance (4.4 – 4.6)  <b>A1</b> Answer in cm <sup>3</sup> , litres or gallons  <b>C1</b> Decision and reason <b>QWC:</b> <b>Decision should be stated, with appropriate supporting statement</b>
	(b)	$"908000" \text{ cm}^3 \times 0.85 \text{ g/cm}^3$ = 771800 g	771.8	3	<b>M1</b> "908000" × 0.85  <b>M1(dep)</b> 771800 ÷ 1000  <b>A1</b> 770 – 772
					<b>Total for Question: 8 marks</b>

- E1.** This question was not well understood and very few candidates obtained full marks. The most successful part was part (c) with almost all candidates giving 20mm. Very few candidates were able to give metric measures for height and weight though the majority of candidates gained 1 mark for either metres or kilograms.

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Many candidates knew that there was a relationship between speed, distance and time with the formula triangle diagram often seen although sometimes with speed or time at the top of the triangle. The most common error was either multiplying 30 by 8 or dividing 30 by 8.

Over half the candidates failed to score on this question even though it was seldom left blank. A third of the candidates did score 1 mark generally for successfully calculating 960 km/h but then progressed no further. The conversion from kilometres to miles was not well known. Many who wrote 5 miles = 8 km or 1 mile = 1.6 km often did not know how to apply this knowledge. Just under 10% of the candidates reached an answer of 600 miles per hour. In this type of question candidates should be encouraged to use common sense and to check that their answer is of a reasonable size for the vehicle being considered.

- E4.** This was a good discriminator. Candidates were expected to make a reasonable estimate of the normal height of a man in metres; a wide tolerance of 1.5 to 2.0 metres was accepted. The flagpole was exactly 4 times as high as the man in the diagram.

In part (a) it was disappointing to find totally unreasonable estimates being given, some quite absurd heights. In part (b) candidates were not careful enough to measure the scaling factor, and a significant number used 3 or 5 as the scale. Those who gave an incorrect estimate in part (a) but used this in part (b) were given some credit.

- E5.** More than three quarters of the candidates gained at least two marks in part (a) and few failed to give at least one correct metric unit. The most common incorrect answers

were 'feet' for the height of the tree, 'kg' for the weight of an egg and 'gallons' for the amount of petrol. In part (b) almost 70% of candidates were able to change 4 metres to centimetres but only half that number could change 1500 grams to kilograms in part (c) where 15 and 150 were the most common incorrect answers.

**E6.** There was a 68% success rate in part (a) with 4.3 being a very common incorrect answer.

In part (b) it was clear that very few candidates knew that there were 2.2 lbs (or even 2 lbs) in a kg. The most popular response was '10' although '100' and '1000' were also commonly seen. This resulted in babies weighing 50, 500 or even 5000 lbs ... quite an accomplishment even in this age of obesity! Hardly any candidates scored both marks and around 70% scored 1 mark, generally for multiplying their answer to (b)(i) by 5.

**E7.** Though most candidates could identify a unit of length or volume in part (a) of this question, imperial units were often seen. Most candidates gained at least one mark in each of parts (a) and (b). Only 40% of candidates could carry out successfully both the conversions in part (b), with a further 40% getting one correct, usually (b)(i).