

Name

Class



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Conversions

(9 – 1) Topic booklet

Higher

These questions have been collated from previous years GCSE Mathematics papers.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
 - *there may be more space than you need.*
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out**.
- If the question is a **1H** question you are not allowed to use a calculator.
- If the question is a **2H** or a **3H** question, you may use a calculator to help you answer.

Information

- The marks for **each** question are shown in brackets
 - *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL questions
Write your answers in the space provided.
You must write down all the stages in your working.

2 In London, 1 litre of petrol costs 108.9p
In New York, 1 US gallon of petrol costs \$2.83

$$1 \text{ US gallon} = 3.785 \text{ litres}$$
$$\text{£1} = \$1.46$$

In which city is petrol better value for money, London or New York?
You must show your working.



2 Three companies sell the same type of furniture.



The price of the furniture from Pooles of London is £1480

The price of the furniture from Jardins of Paris is €1980

The price of the furniture from Outways of New York is \$2250

The exchange rates are

$$\text{£1} = \text{€1.34}$$

$$\text{£1} = \$1.52$$

Which company sells this furniture at the lowest price?

You must show how you get your answer.

2 Asif is going on holiday to Turkey.



The exchange rate is £1 = 3.5601 lira.

Asif changes £550 to lira.

(a) Work out how many lira he should get.

Give your answer to the nearest lira.

..... lira
(2)

Asif sees a pair of shoes in Turkey.

The shoes cost 210 lira.

Asif does not have a calculator.

He uses £2 = 7 lira to work out the approximate cost of the shoes in pounds.

(b) Use £2 = 7 lira to show that the approximate cost of the shoes is £60

(2)

(c) Is using £2 = 7 lira instead of using £1 = 3.5601 lira a sensible start to Asif's method to work out the cost of the shoes in pounds?

You must give a reason for your answer.

(1)

6 Lava flows from a volcano at a constant rate of $11.9 \text{ m}^3/\text{s}$



How many days does it take for $67\,205\,600 \text{ m}^3$ of lava to flow from the volcano?
Give your answer correct to the nearest day.

..... days

June 2023 – Paper 3H

(Total for Question 6 is 3 marks)

7 In Spain, Sam pays 27 euros for 18 litres of petrol.
In Wales, Leo pays £40.80 for 8 gallons of the same type of petrol.

$$\begin{aligned}1 \text{ euro} &= \text{£}0.85 \\4.5 \text{ litres} &= 1 \text{ gallon}\end{aligned}$$

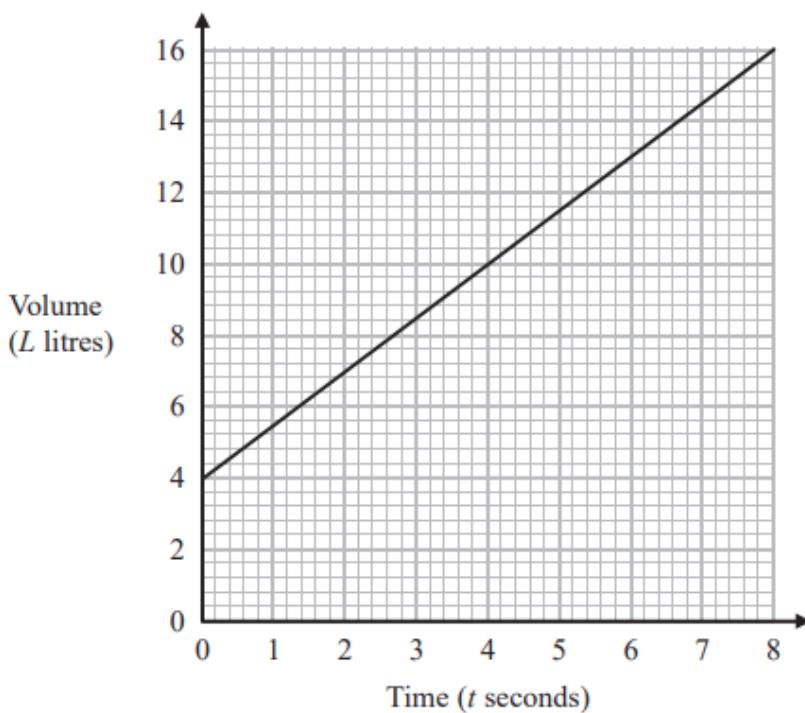


Sam thinks that petrol is cheaper in Spain than in Wales.

Is Sam correct?

You must show how you get your answer.

12 The graph shows the volume of liquid (L litres) in a container at time t seconds.



(a) Find the gradient of the graph.

(2)

(b) Explain what this gradient represents.

(1)

The graph intersects the volume axis at $L = 4$

(c) Explain what this intercept represents.

(1)