Rewarding Learning

General Certificate of Secondary Education

Mathematics

Unit M6 Paper 1
(Non-Calculator)
Foundation Tier

ML

[GMC61]
Assessment

Assessment Level of Control	Tick the relevant box (✓)
Controlled Conditions	
Other	

TIME

1 hour, plus your additional time allowance.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
You must answer the questions in the spaces provided.
Do not write outside the boxed area on each page, on blank pages or tracing paper.
Complete in black ink only. **Do not write with a gel pen.**
Answer **all seventeen** questions.
All working should be clearly shown in the spaces provided. Marks may be awarded for partially correct solutions.
You **must not** use a calculator for this paper.

INFORMATION FOR CANDIDATES

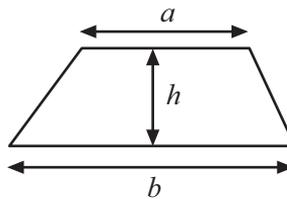The total mark for this paper is 50.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
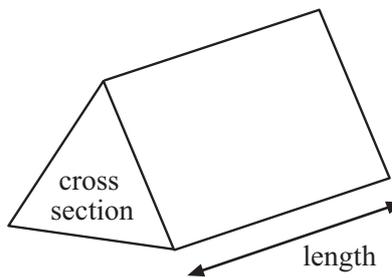You should have a ruler, compasses and a protractor.
The Formula Sheet is on page 2.

Formula Sheet

Area of trapezium $= \frac{1}{2}(a + b)h$

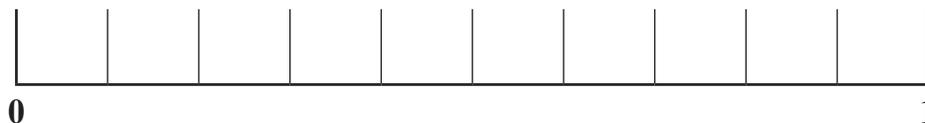**Volume of prism** = area of cross section × length

1 Ben has five flags from Asia.

They are from Malaysia, Mongolia, Myanmar, Taiwan, and Vietnam.
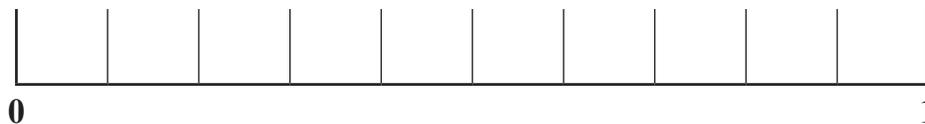
Ben takes one of these flags at random.

(a) Mark on the probability scale with a **V** the probability that the flag taken is Vietnam.

0   **1**

[1]

(b) Mark on the probability scale with an **M** the probability that the flag taken is from a country beginning with the letter M.

0   **1**

[1]

2 **(a)** Circle the two units of capacity.

gallons   miles   pints   pounds   stones   yards   [1]

(b) Jack is 6 feet 3 inches tall.

Jill is 5 feet 8 inches tall.

1 foot = 12 inches.

How many inches taller is Jack than Jill?

Answer _____ inches [2]

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3 Use $5 \times 12 = 60$ $60 \div 5 = 12$ and $12 \div 5 = 2.4$

to complete the following.

(a) $\boxed{} \times 12 = 600$ [1]

(b) $600 \div \boxed{} = 120$ [1]

(c) $12 \div 50 = \boxed{}$ [1]
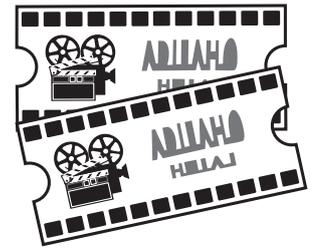
4 A cinema has two screens.

500 people go to this cinema on a Saturday evening.

$\frac{3}{5}$ of these people go to screen 1

40% of the people who go to screen 2 are children.

How many children go to screen 2?

Show all your working out.

Answer _____ [3]

5 **(a)** Write in its simplest form the ratio 12 : 30

Answer _____ [1]

(b) **(i)** Mark and Dylan have a number of toy bricks

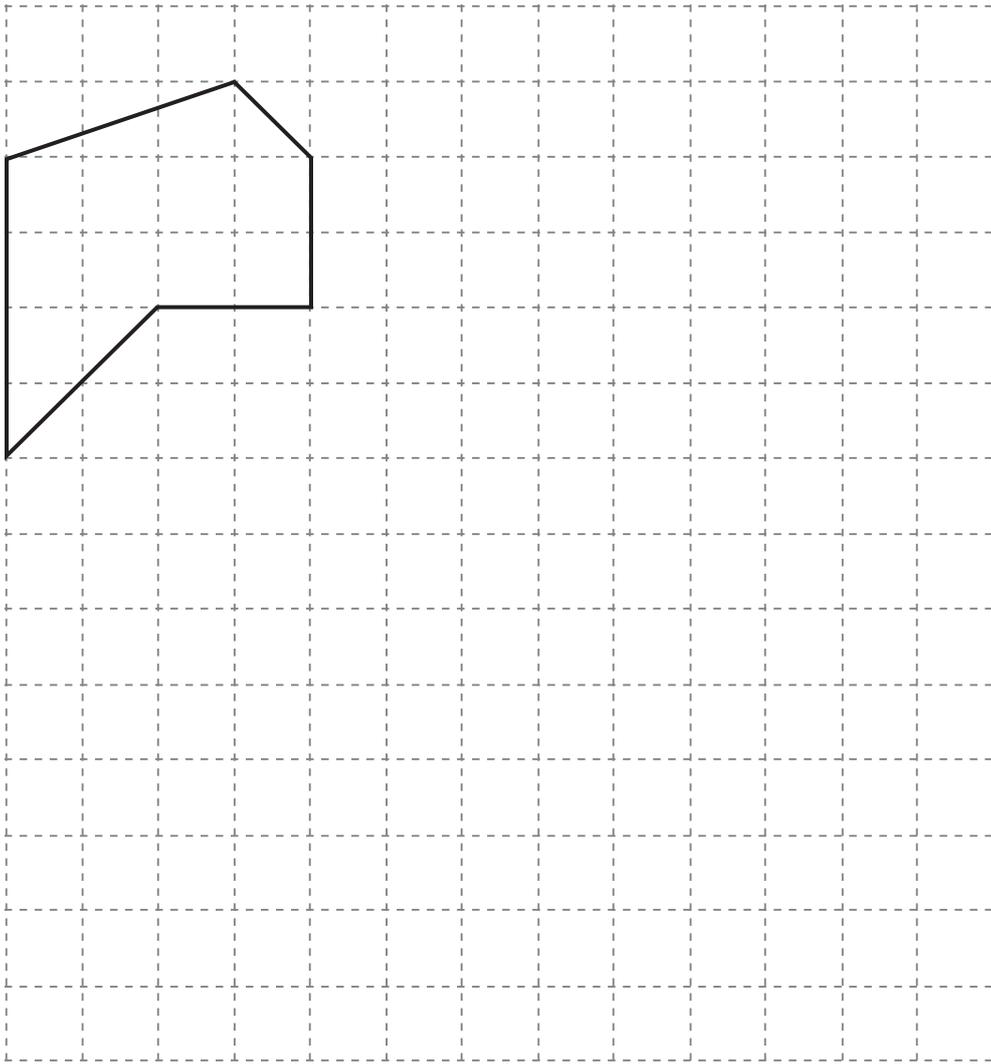in the ratio 3 : 2

What fraction of the bricks does Mark have?

Answer _____ [1]

(ii) They have 35 bricks in total.

How many do they each have?

Answer   Mark has _____ , Dylan has _____ [2]

6 On the grid, enlarge the shape with a scale factor of 2

[2]

7 Which of the numbers below shows that the following statement is not true?

"If P is any odd number, then $P + 2$ is always a prime number."

Show all your working out before you tick the correct box.

$P = 1$ ☐ $P = 5$ ☐

$P = 3$ ☐ $P = 7$ ☐   [2]

8 In a Year 12 class, the following information was recorded.

	Boys	**Girls**
Wears glasses	3	5
Does not wear glasses	10	6

(a) What fraction of the pupils in the class wear glasses?

Answer _____ [2]

(b) A pupil was chosen at random from the class.

What is the probability that the pupil was a boy who does not wear glasses?

Answer _____ [1]

(c) The next week a new boy joins the class.

He wears glasses.

Will this change the probability of now choosing at random a girl who wears glasses?
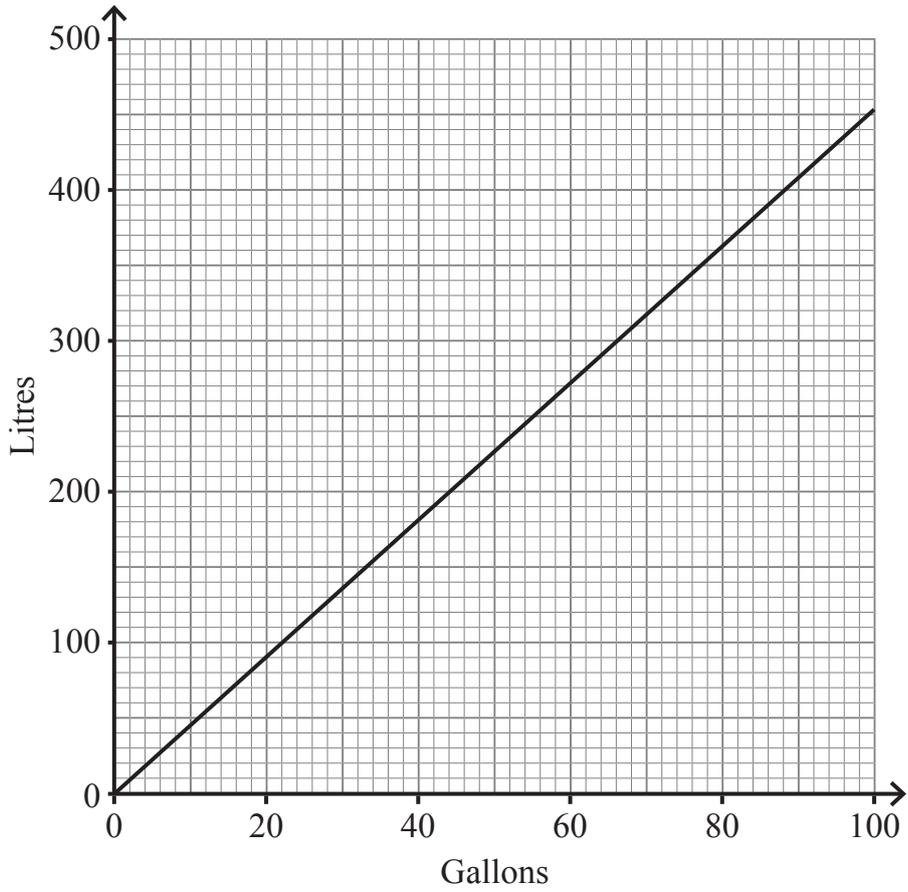
Explain your answer clearly.

Answer _____ because _____ [2]

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9   Change 20 miles/h to km/h.

Answer _____ km/h [2]

10 Use this conversion graph to answer the following questions.

(a) An oil drum holds 15 gallons of oil.

How many litres of oil is this?

Answer _____ litres [1]

(b) An oil tank holds 900 litres of oil.

How many gallons of oil is this?

Answer _____ gallons [1]

(c) Complete this sentence.

A gallon is about _____ times greater than a litre. [1]

[Turn over

11 "Look Dad," said Erin.

"Here are all the silver coins from my piggy bank."

"How much have you got?" said Dad.

"$\frac{1}{3}$ are 5p coins, $\frac{1}{4}$ are 10p coins and the other 10 coins are 50p coins," said Erin.

What is Erin's total amount of money?

Show all your working out.

Answer _____ [5]

12 ABCDE is a pentagon.

Lines AF and CG are straight lines.
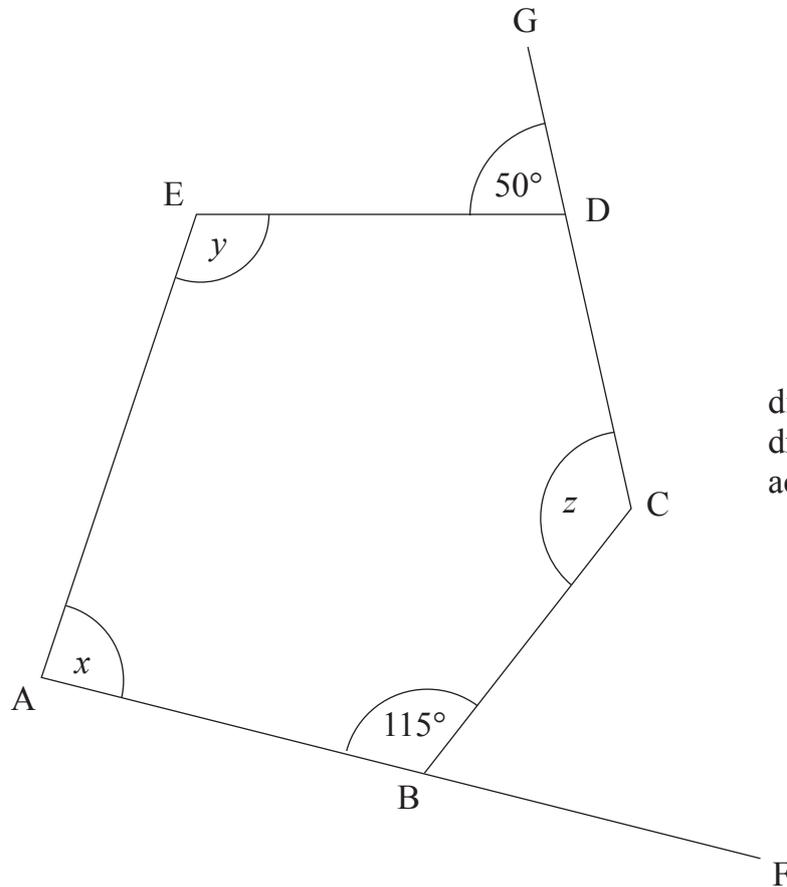
Work out the value of $x + y + z$

diagram not drawn accurately

Answer _____ ° [5]

13 Simplify each of the following.

(a) $4p^3 \times 3p^4$

Answer _____ [1]

(b) $(q^2)^3 \div q^8$

Answer _____ [1]

14 Find the nth term of the sequence

$$7, \qquad 4, \qquad 1, \qquad -2, \qquad .....$$

Answer nth term = _____ [2]

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15 Tom tests a six-sided dice which he thinks is biased towards the even numbers.

He does an experiment by rolling the dice.

He records the results as E (even) or O (odd).

$$E \quad O \quad E \quad O \quad E \quad E \quad O \quad E \quad E \quad O \quad E \quad O$$

(a) What is the relative frequency of an even number?

Answer _____ [1]

(b) How could Tom improve the experiment?

Answer _____ [1]

16 Make y the subject of

$$3y - 12 = 4x$$

Answer $y =$ _____ [2]

[Turn over

17 A rectangle has a length of $3x$ cm and a width of $(x + 5)$ cm.

The length is greater than the width.

(a) Write this information as an inequality in x.

Answer _____ [1]

(b) (i) Solve the inequality.

Answer _____ [1]

(ii) Show your answer on the number line below.

$$\xrightarrow{\hspace{8cm}} x$$

-4   -3   -2   -1   0   1   2   3   4   5

[1]

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