Rewarding Learning

Centre Number

Candidate Number

General Certificate of Secondary Education
January 2015

Mathematics

Unit T5 Paper 1

(Non-calculator)
Foundation Tier

[GMT51]

ML

WEDNESDAY 14 JANUARY 9.15am–10.15am

TIME

1 hour, plus your additional time allowance.

INSTRUCTIONS TO CANDIDATES

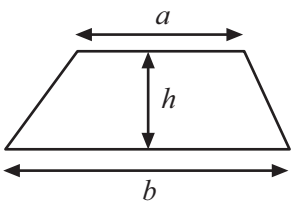
Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
You must answer the questions in the spaces provided.
Do not write outside the box, around each page, on blank pages or tracing paper.
Complete in blue or black ink only. **Do not write with a gel pen.**
Answer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

INFORMATION FOR CANDIDATES

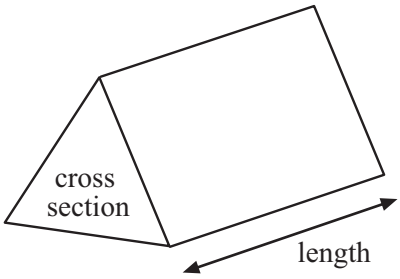
The total mark for this paper is 50.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
Functional Elements will be assessed in this paper.
Quality of written communication will be assessed in **Question 7(b)**.
You should have 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

impossible **unlikely** **evens** **likely** **certain**

(a) Look at the list of words above. Write down the best word to describe the chance of these events. Use words from the list.

(i) Next week will have 7 days. _____ [1]

(ii) You will meet the President of the United States of America.

_____ [1]

(b) Write down an event for which the chance is evens.

_____

_____ [1]

2 A rule to convert miles to kilometres is

Number of kilometres = 8 × number of miles ÷ 5

(a) Liam lives 10 miles from Jack.

How far is this in kilometres?

Answer _____ km [2]

(b) Sam lives 40 km from Jenny.

How far is this in miles?

Answer _____ miles [2]

[Turn over

3 **(a)** There are 6 eggs in each egg box.

Estimate the total number of boxes needed to pack 297 eggs.

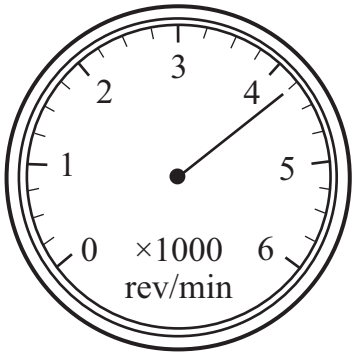
Answer _____ [2]

(b) Tommy earns £6.15 per hour.

Estimate his earnings for 39 hours.

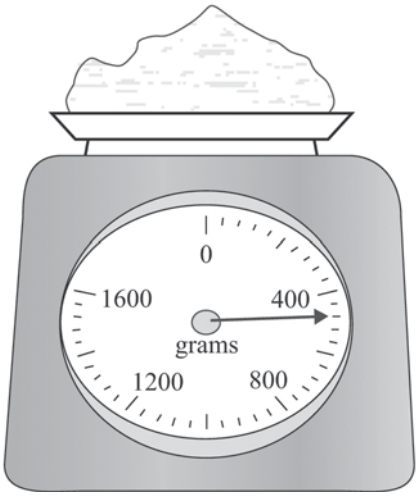
Answer £ _____ [2]

4 **(a)** The engine speed of a car is measured in revolutions per minute (rev/min).
Write down the **real** engine speed.



Answer _____ rev/min [2]

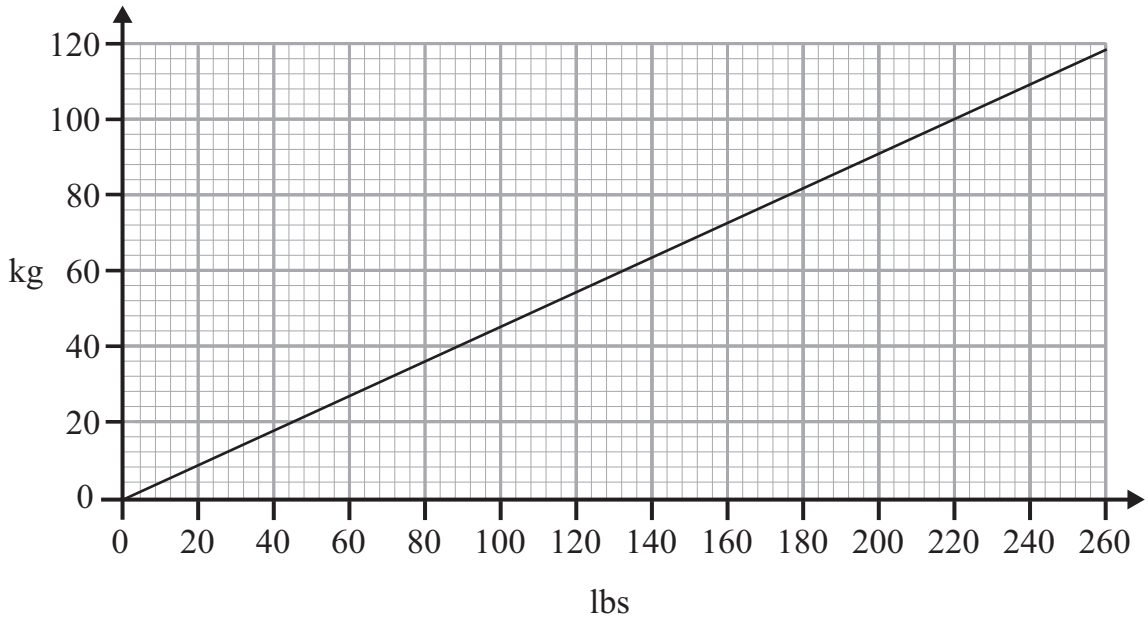
(b) A recipe uses 10 ounces of flour to make 12 buns.
Joanne is baking 24 buns.
Joanne has some flour on the scales.
How much **more** flour does she need?
(1 ounce = 25 grams)
Show all your work clearly.



Answer _____ g [4]

[Turn over

5 This graph can be used to convert pounds (lbs) to kilograms (kg).



(a) The average weight of an American Football player is 248 lbs.

How many kilograms is this?

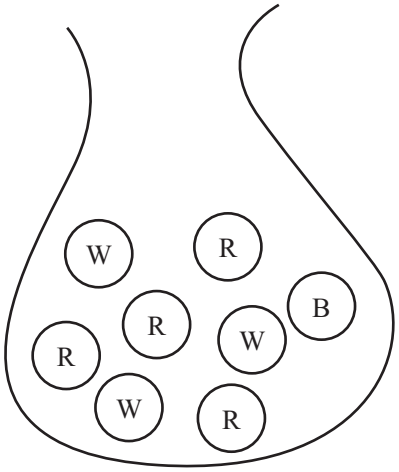
Answer _____ [1]

(b) Justin weighs 72 kg. His American cousin Leroy weighs 165 lbs.
Justin says he weighs more than Leroy.
Is he correct? Explain your answer.

Answer _____ because _____

_____ [2]

6 A bag contains 1 black, 4 red and 3 white counters.

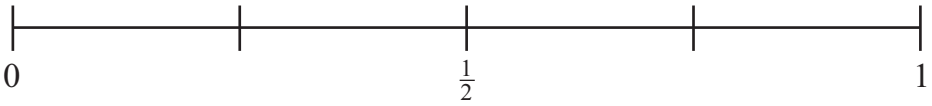


B = black
R = red
W = white

(a) Emma takes a counter at random from the bag.
On the scale below:

(i) mark with an arrow and the letter G, the probability that the counter taken is green, [1]

(ii) mark with an arrow and the letter T, the probability that the counter taken is red or white. [2]



(b) Emma replaces the counter in the bag. A number of pink counters are added to the bag. A counter is now taken at random from the bag. The probability that it is red is now $\frac{1}{5}$.
How many pink counters were added to the bag?

Answer _____ [2]

[Turn over

7 Kelly has these coins in her purse:

one £1 coin
three 50 pence coins
three 20 pence coins
four 10 pence coins

(a) She buys sweets that cost £2.24

How much money has she left in her purse after she pays for the sweets?

Answer £ _____ [2]

Quality of written communication will be assessed in this part of the question.

(b) Kelly wants to have the **least** number of coins in her purse after she gets her change. How should she pay for her sweets and how many coins will she have left?

Show clearly all your working out.

[3]

8 **(a)** Estimate $\sqrt{34}$

Answer _____ [1]

(b) Mel says that every number has a reciprocal.

Write down the counter example to show that Mel is wrong.

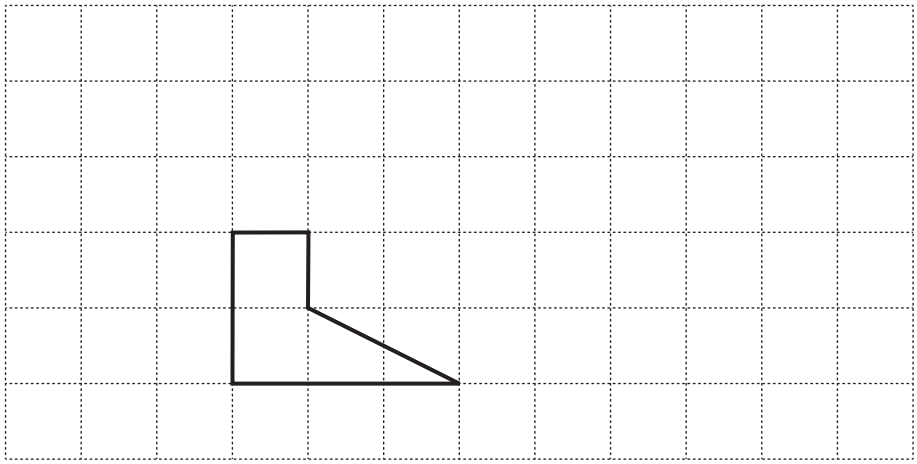
Answer _____ [1]

(c) Round 53.0387 to 2 decimal places.

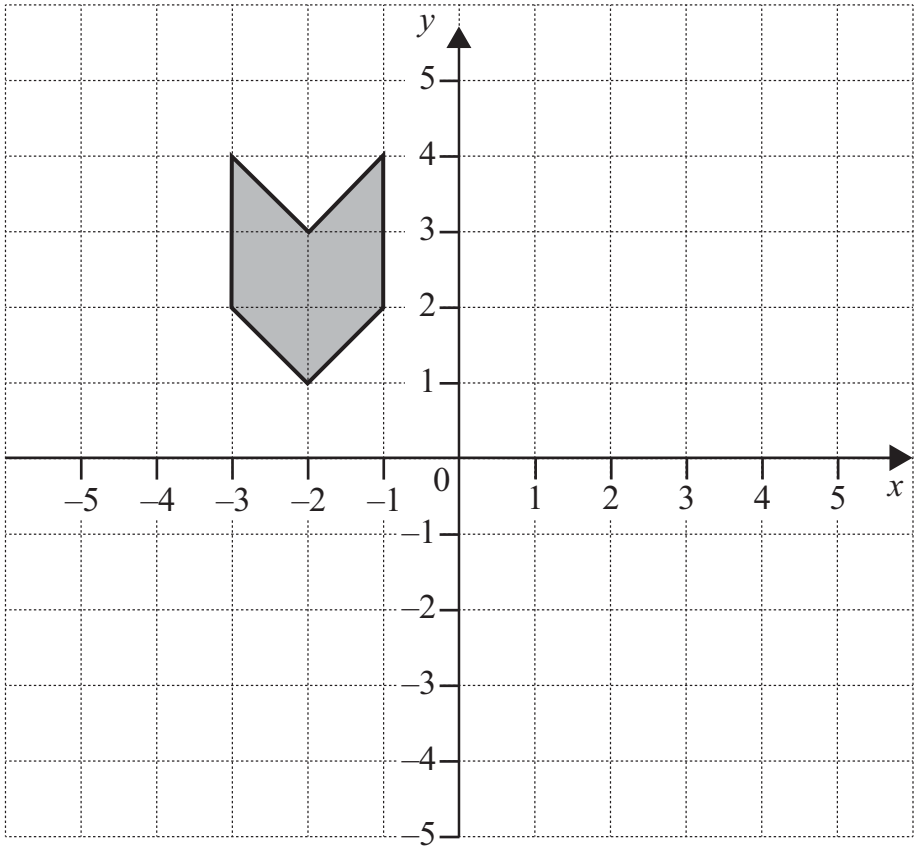
Answer _____ [1]

[Turn over

9 **(a)** Enlarge the shape by scale factor 2 [2]



(b) Reflect the shaded shape in the *y* axis. [1]



10 Draw an arrow to link each term on the left with a correct example on the right.

	$3x + 2y$
EQUATION	
	$T = 2P + Q$
EXPRESSION	
	$2(x + 3) \leqslant 6$
FORMULA	
	$x + 3 = 12$

[3]

11 A lorry travels 240 km in 150 minutes.

Calculate the average speed of the lorry in km/hr.

Answer _____ km/hr [3]

[Turn over

12 A ball is dropped from a height h metres.

Its speed V, in metres per second, can be calculated using the formula:

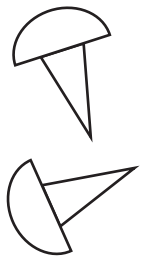
$$V = \sqrt{2gh}$$

Find the value of V when $g = 10$ and $h = 20$

Answer V = _____ m/s [3]

13 Marcus wants to investigate the likelihood of a drawing pin landing point up or point down when it is dropped.
He drops a drawing pin a number of times. His results are shown in the table.

up
up
down
up
up
down
up
down



(a) What is the relative frequency of the drawing pin landing point up?

Answer _____ [1]

(b) Marcus concludes that a drawing pin is more likely to land point up.
Comment on his conclusion.

_____

_____ [1]

[Turn over

14 List the values of the integer n which satisfy the inequality

$$-7 < 3n \leqslant 6$$

Answer _____ [3]

THIS IS THE END OF THE QUESTION PAPER

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For Examiner's use only	
Question Number	**Marks**
1	
2	
3	
4	
5	
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10	
11	
12	
13	
14	
Total Marks	

Examiner Number