Surname	Centre Number	Candidate Number
Other Names		0

GCSE LINKED PAIR PILOT

4362/01

APPLICATIONS OF MATHEMATICS

UNIT 2: Financial, Business and Other Applications
FOUNDATION TIER

A.M. THURSDAY, 19 June 2014

1 hour 30 minutes

Suitable for Modified Language Candidates

4362
010001

ADDITIONAL MATERIALS

A calculator will be required for this paper.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** the questions in the spaces provided.

Take π as 3·14 or use the π button on your calculator.

INFORMATION FOR CANDIDATES

You should give details of your method of solution when appropriate.

Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.

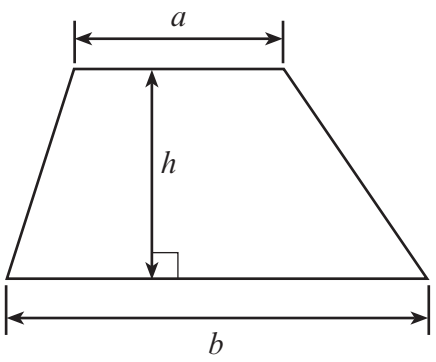
The number of marks is given in brackets at the end of each question or part-question.

You are reminded that assessment will take into account the quality of written communication (including mathematical communication) used in your answer to question **2**.

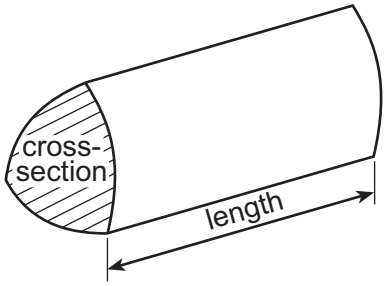
For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	**6**	
2.	**9**	
3.	**4**	
4.	**5**	
5.	**4**	
6.	**4**	
7.	**7**	
8.	**7**	
9.	**4**	
10.	**6**	
11.	**7**	
12.	**9**	
13.	**8**	
Total	**80**	

Formula List

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



Volume of prism = area of cross-section × length



Examiner only

1. Elina carried out a survey of 30 people to find out which vegetable they liked the most. People could choose from cabbage, peas, broccoli and sprouts.
Her results are as follows.

Cabbage	Cabbage	Peas	Peas	Sprouts	Sprouts
Peas	Cabbage	Peas	Sprouts	Peas	Peas
Broccoli	Sprouts	Cabbage	Sprouts	Peas	Peas
Peas	Peas	Peas	Cabbage	Sprouts	Cabbage
Cabbage	Peas	Cabbage	Broccoli	Broccoli	Peas

Use the data to draw a suitable bar chart on the squared paper below. [6]

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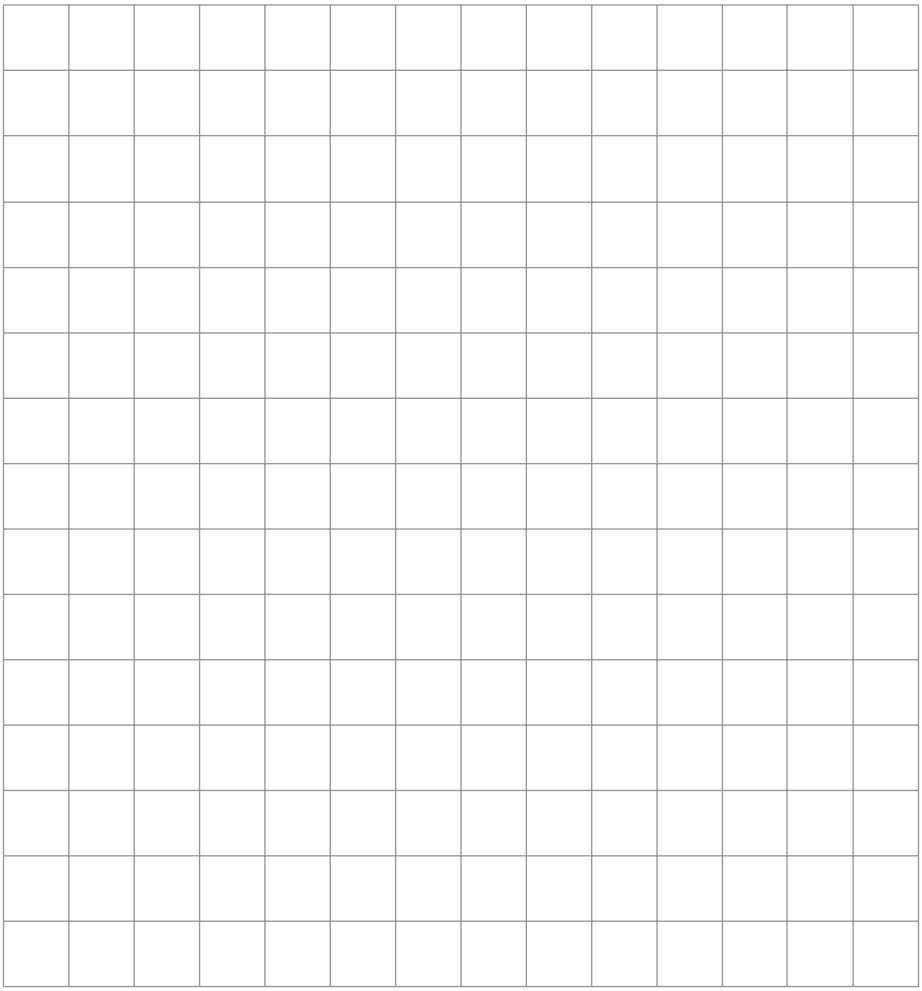

Examiner only

2. *You will be assessed on the quality of your written communication in this question.*

A fashion store buys 200 bracelets for £6.30 each.
The store sells 60% of the bracelets for £9.99 each.
The remaining bracelets are later sold at a reduced price of £3.98 each.
How much profit or loss did the fashion store make?
You must show all your working. [9]

Examiner only

3.

The above picture shows a car outside a house.

Write down an **estimate** for the **actual height** of the car .....

Write down an **estimate** for the **actual height** of the house.
You must show all your working. [4]

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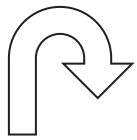
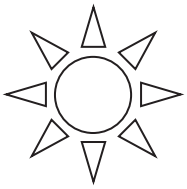
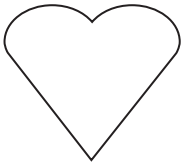
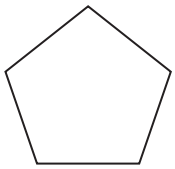
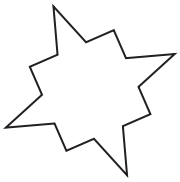
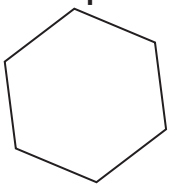
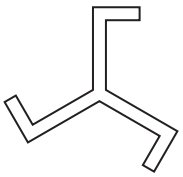
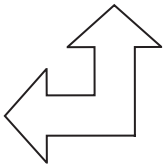
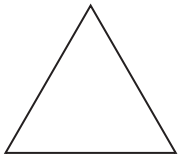
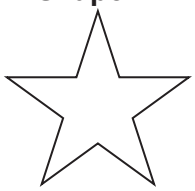
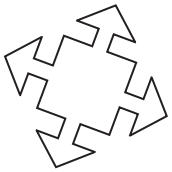
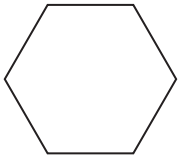
Examiner only

4. In a game, Carwyn is asked to select pairs of shapes from the cards given below.

Shape A 	**Shape B** 	**Shape C** 	**Shape D** 	**Shape E** 
Shape F 	**Shape G** 	**Shape H** 	**Shape I** 	**Shape J** 
Shape K 	**Shape L** 	**Shape M** 	**Shape N** 	**Shape P** 

He must select his shapes using given conditions. [5]

Condition 1: Select a pair of shapes that have rotational symmetry of order 3.

Shape ..... and Shape .....

Condition 2: Select a pair of shapes that have exactly 4 lines of symmetry.

Shape ..... and Shape .....

Condition 3: Select a pair of shapes that are congruent.

Shape ..... and Shape .....

Condition 4: Select a pair of shapes that are similar but not congruent.

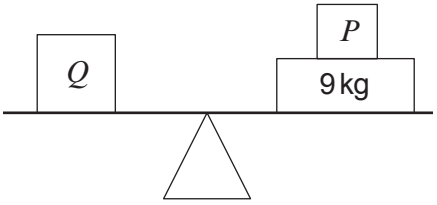
Shape ..... and Shape .....

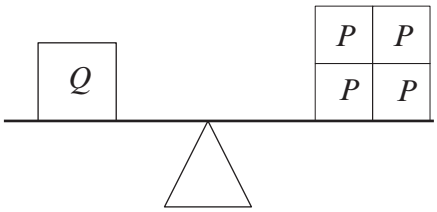
Condition 5: Select a pair of shapes that do not have rotational symmetry.

Shape ..... and Shape .....

Examiner only

5. Packages P and Q balance as shown in the diagrams below.





Find the weight of package P and the weight of package Q. [4]

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6. In a sports club, a fitness coach was asked about 4 different measurements.

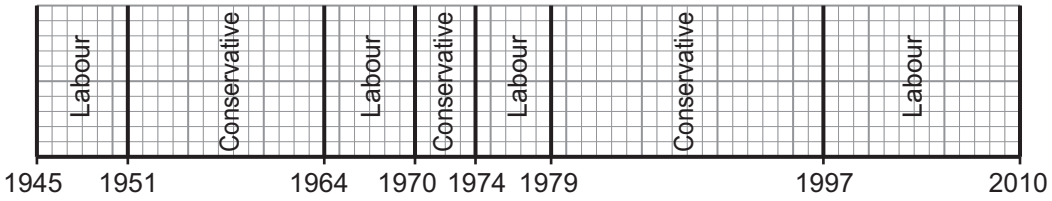
Circle the appropriate quantity that you think the coach should give for each measurement. [4]

Weight of a man	900 g	900 kg	90 mg	90 kg
Length of a rugby pitch	122 cm	122 m	122 mm	122 km
Capacity of a bottle of water	75 cl	75 litres	75 cm^3	7·5 litres
Speed of a sprinter over 100 metres	90 km/hr	9 mph	9 m/s	90 m/s

Examiner only

7. Anna is interested in the political parties which have governed (been in charge of) the UK.

The time line shows the election years in which there was a change in the political party in government in the UK from 1945 to 2010.



(a) Which political party governed the UK [1]

- from 1945 to 1951, ...
- in 1973? .....

(b) What is the total number of years that each political party was in government between 1945 and 2010? Use the time line above to find your answer. [3]

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Conservative: ..... years Labour: ..... years

(c) For what fraction of the total number of years shown in the time line did Labour govern the UK? [2]

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(d) In the UK, there is no fixed date during the year for holding an election.
Explain how this could affect your answers in parts *(b)* and *(c)*. [1]

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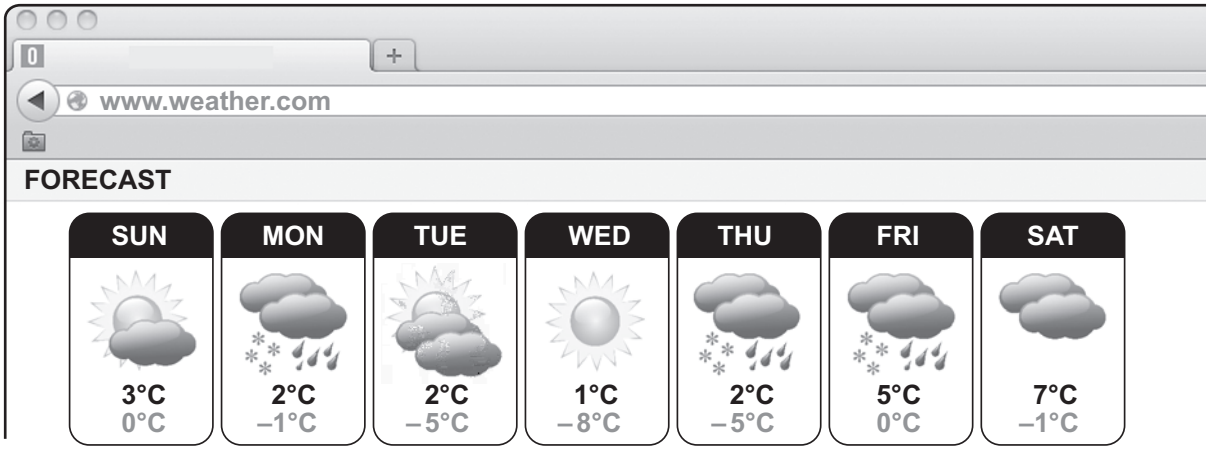
Examiner only

8. Jessie went to Canada on a snowboarding holiday.

(a) A website shows the weather forecast for the highest and lowest daily temperatures for the week in Canada.



(i) What is the lowest temperature shown for the week? [1]

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(ii) What is the difference between the highest and lowest temperatures shown for the week? [1]

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Examiner only

(b) (i) Before going on holiday, Jessie changed £800 into Canadian dollars ($).
The exchange rate was £1 = $1.59.
How many dollars did she receive? [2]

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(ii) Whilst on holiday she paid $456 for a lift pass to go snowboarding.
Calculate the value of the lift pass in pounds. Use the same exchange rate for your calculation.
Give your answer to the nearest pound. [3]

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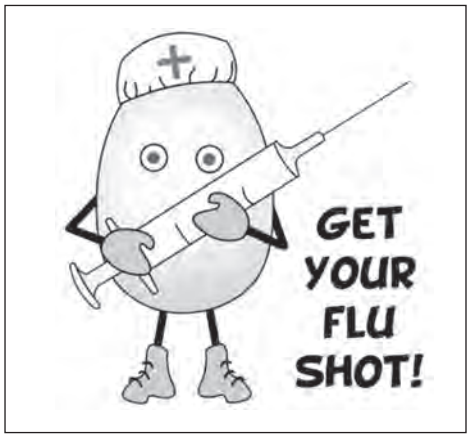
Examiner only

9.



Doctors recommend that you should have a flu vaccination if you:

- are over the age of 65 or
- are a diabetic or
- have a chest condition or
- are pregnant.

Use the table to decide which of the following people should or should not have the flu vaccination.

Personal details
Denise is 12 years of age and is a diabetic.
Jack is an old-aged pensioner (over 65) who suffers from bronchitis, which is a chest condition.
David is a 43 year old fitness instructor.
Alys is expecting her first child at the age of 27.

You must:

- consider **each** person;
- give a reason why **each** person should or should not have the flu vaccination.

Write your answers in the table below. [4]

	Should have flu vaccination? Yes or No	**Reason**
Denise		
Jack		
David		
Alys		

Examiner only

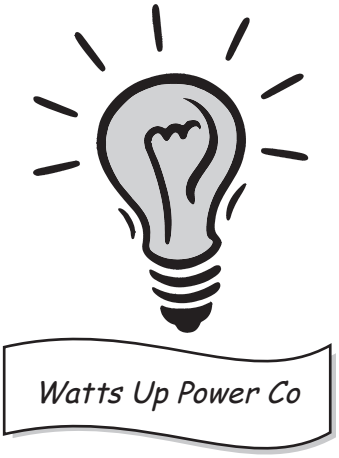
10. The company *Watts Up Power Co* supplies electricity to Mr Davies.

The company charges 24.7 pence per unit of electricity used **and** there is a 31 pence charge per day.

Mr Davies' electricity meter readings at the beginning and at the end of a 92 day period were 13488 and 14399 respectively.

Calculate how much the company charges Mr Davies in total for the 92 day period.
Give your answer correct to the nearest penny.

You must show all your working. [6]



Examiner only

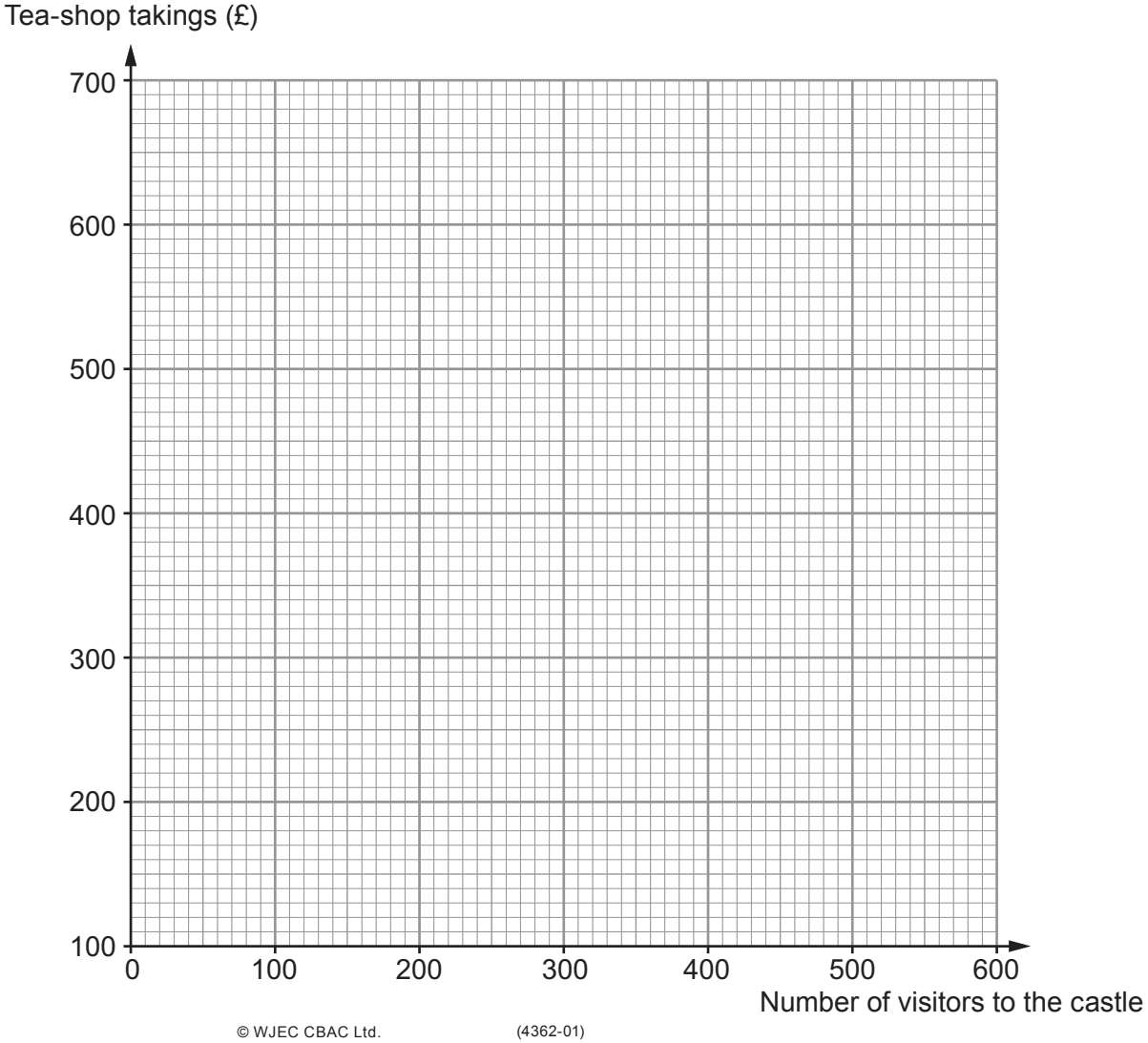
11.

The manager of a tea-shop at a castle kept some records every day for 7 days.
The manager recorded:

- The number of visitors to the castle.
- The total money taken at the tea-shop.

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Number of visitors to the castle	120	180	400	320	460	550	420
Tea-shop takings (£)	150	230	500	380	560	660	490

(a) Draw a scatter diagram of these results. Use the graph paper provided. [2]



Examiner only

(b) Draw, by eye, a line of best fit on your scatter diagram opposite. [1]

(c) Describe the correlation between the number of visitors to the castle and the tea-shop takings. [1]

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(d) The manager of the tea-shop states,

'My records tell me that each visitor to the castle spends more than £1 each at the tea-shop.'

(i) Explain why the manager says this. [2]

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(ii) The statement is not necessarily true.
Explain why this statement may not be true. [1]

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Examiner only

12.

(a) Selwyn sells two makes of suitcases. They are called the Subidas suitcase and the Dinkey suitcase. He uses a stem-and-leaf diagram to record the prices of the suitcases. Selwyn's stem-and-leaf diagram is shown below.

Subidas		Dinkey
7 1	8	1 5
6	7	2 5
8 7	6	1 6 7
6 3	5	4 4 4
6 2 2 1	4	5

Key: Subidas 3 | 5 means £53
Dinkey 5 | 4 means £54

(i) What is the price and make of the most expensive suitcase? [1]

Price: £ .....

Make: .....

(ii) Complete the following table. [4]

	Median in £	Range in £	Mode in £
Subidas			
Dinkey			

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(iii) On average, which make of suitcase is the more expensive?
You must give a reason for your answer. [1]

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Examiner only

(b) The suitcase shop owner has illustrated, in a pictogram, the number of suitcases sold in a week.

Key:  is 20 suitcases

(i) Selwyn looks at the pictogram and says,

'The number of suitcases sold on Sunday was 40% higher than the number of suitcases sold on Wednesday.'

Is Selwyn correct?
You must show all your working to justify your answer. [2]

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(ii) Looking at the pictogram again, Selwyn says,

'More money was spent on buying suitcases in this shop on Sunday than on any other day.'

Is Selwyn correct?
You must give a reason for your answer. [1]

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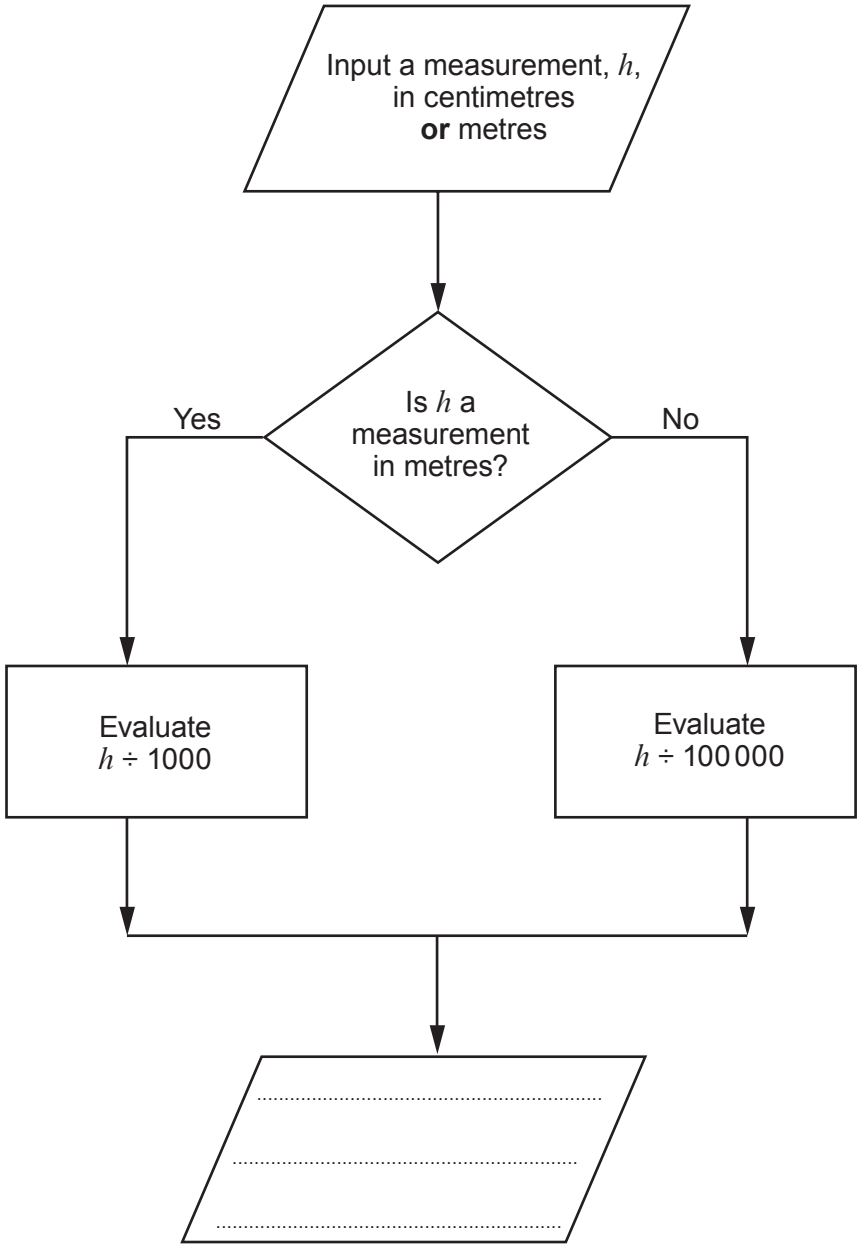
Turn over.

Examiner only

13. *(a)* The following is a section of a flowchart.



What would this section of the flowchart be used for?
Give an example of what might be written in the output box. [2]

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Examiner only

(b) In the box below construct a section of a flowchart that would:

- Allow input of whole numbers
- Add 1 to any odd number
- Not change even numbers
- Allow the output of only even numbers. [6]

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