

Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

Forename(s)

Candidate signature

Level 1/Level 2 Certificate USE OF MATHEMATICS

F

Foundation Level Core Unit

Monday 23 May 2016

Morning

Time allowed: 1 hour 15 minutes

Materials

For this paper you must have:

- a clean copy of the Data Sheet (enclosed)
- a calculator
- mathematical instruments.



Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer **all** questions.
- You must answer each question in the space provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work that you do not want to be marked.
- You may **not** refer to the copy of the Data Sheet that was available prior to this examination. A clean copy is enclosed for your use.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 50.
- You are expected to use a calculator where appropriate.

Advice

- In all calculations, show clearly how you work out your answer.



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ANSWER IN THE SPACES PROVIDED**



Section AAnswer **all** questions.

Answer each question in the space provided for that question.

*Use **Camping** on page 3 of the Data Sheet.*

- 1 (a) For how many months of the year is the campsite **open**?
Circle your answer.

5 6 7 8

[1 mark]

- 1 (b) Lashmi and her husband booked the campsite for three nights in June.
They have a dog and two children.

Calculate the total cost of the booking.

[3 marks]

Answer £ _____

- 1 (c) The total cost of camping for a different group of people was £75
This cost included £15 for additional adults.

What fraction of the total cost was the cost for the additional adults?

Give your answer in its lowest terms.**[2 marks]**

Answer _____

Turn over ►

Section BAnswer **all** questions.

Answer each question in the space provided for that question.

Use Olympic diving on page 4 of the Data Sheet.

- 2 (a)** What is the **degree of difficulty** for a back $2\frac{1}{2}$ somersaults dive in the **pike** position off a 10-metre platform?

[1 mark]

Answer _____

- 2 (b)** Divers *A* and *B* take part in a 10-metre platform competition.

Diver *A* does a back $2\frac{1}{2}$ somersaults dive in the tuck position.

His marks are 7.5 6.5 6.5 6.0 7.0 6.5 7.0

Diver *B* does a reverse 3 somersaults dive in the pike position.

His marks are 7.0 6.0 6.5 5.5 6.5 6.5 7.5

Which diver gets the higher score?

You **must** show your working.

[5 marks]

Answer _____



- 2 (c) The scores for the six dives made by David Boudia at the London 2012 Olympic Games were:

97.20 86.40 99.90 90.75 91.80 102.60

- 2 (c) (i) Calculate the mean of these scores.

[3 marks]

Answer _____

- 2 (c) (ii) Calculate the range of these scores.

[2 marks]

Answer _____

- 2 (d) Russia's Victor Minibaev and Cuba's Jose Guerra competed in the 2012 Olympics 10-metre platform diving final.

Minibaev's scores had a range of 14.4 and a mean of 87.97
Guerra's scores had a range of 20.7 and a mean of 87.95

- 2 (d) (i) What do these ranges tell you about Minibaev's scores compared to Guerra's scores?

[1 mark]

- 2 (d) (ii) Which of these two divers had a better final position?

[1 mark]



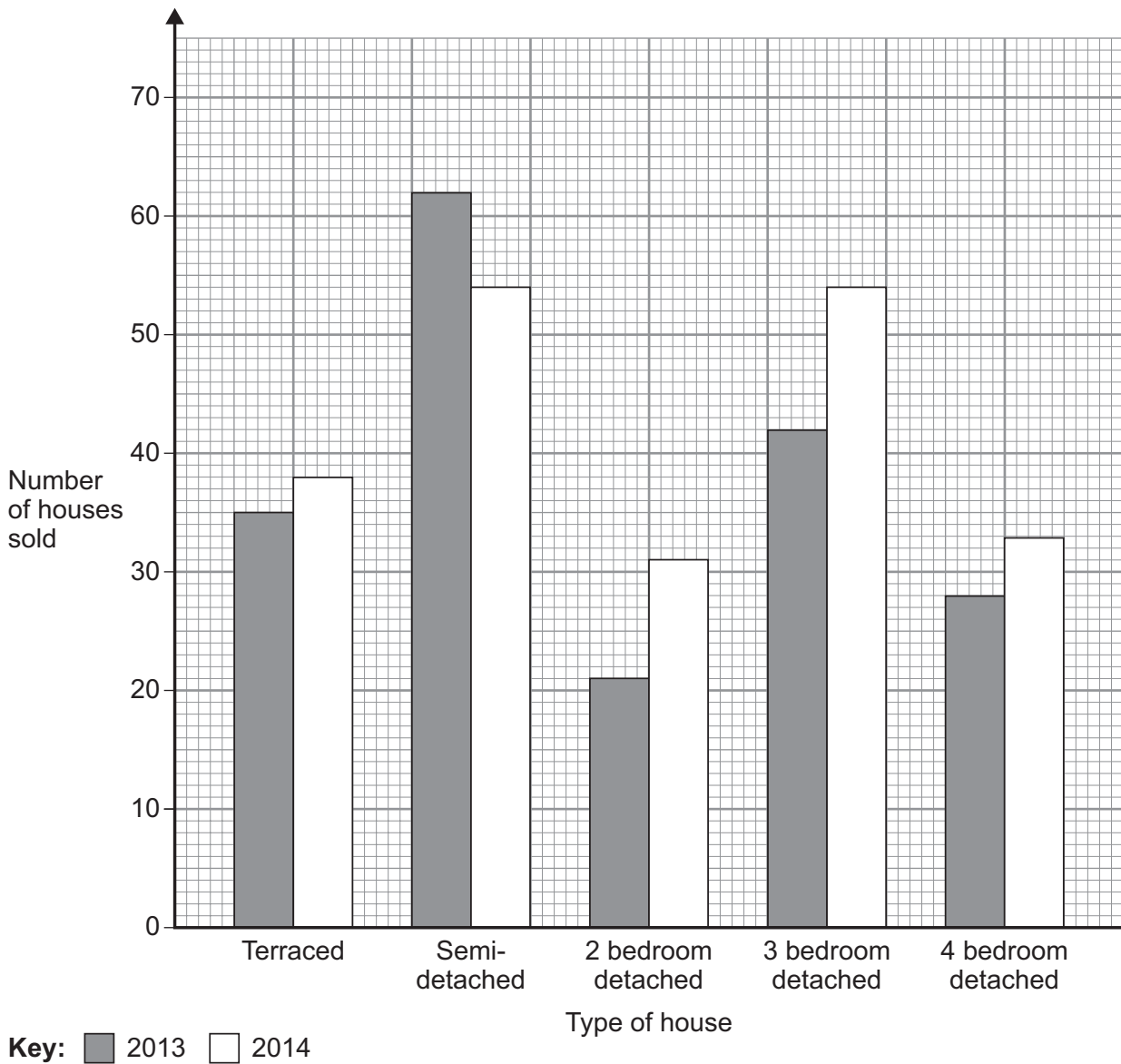
Section CAnswer **all** questions.

Answer each question in the space provided for that question.

Use House sales and house prices on page 6 of the Data Sheet.

- 3 (a)** An estate agent sells terraced, semi-detached and 2, 3 and 4 bedroom detached houses.

The diagram shows how many houses the estate agent sold in 2013 and in 2014



3 (a) (i) For which type of house were **fewer** houses sold in 2014 than in 2013? **[1 mark]**

Answer _____

3 (a) (ii) How many terraced houses were sold in 2014? **[1 mark]**

Answer _____

3 (a) (iii) How many **more** 3 bedroom detached houses were sold in 2014 than in 2013? **[2 marks]**

Answer _____

Question 3 continues on the next page

Turn over ►



- 3 (b)** Jane sold her house and her total costs were £3550
The table shows the amounts of two of her costs.

Type of cost	Amount (£)
Estate agent's fee	3150
Solicitor's fee	284
Energy Performance Certificate	
Total	3550

- 3 (b) (i)** Use the values in the table to calculate the cost of the house's Energy Performance Certificate.

[2 marks]

Answer £ _____

- 3 (b) (ii)** What percentage of Jane's total costs was the solicitor's fee?

[2 marks]

Answer _____ %



- 3 (c)** In June 2013, the average house price in England and Wales was £162 000
In June 2013, the average house price in Tyne and Wear was $\frac{5}{8}$ of the average house price in England and Wales.

Calculate the average house price in Tyne and Wear in June 2013

[2 marks]

Answer £ _____

- 3 (d)** An estate agent's fee is 1.5% of the selling price of a house.

Calculate the estate agent's fee for a house that sells for £175 000

[2 marks]

Answer £ _____

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Turn over for the next question

Turn over ►



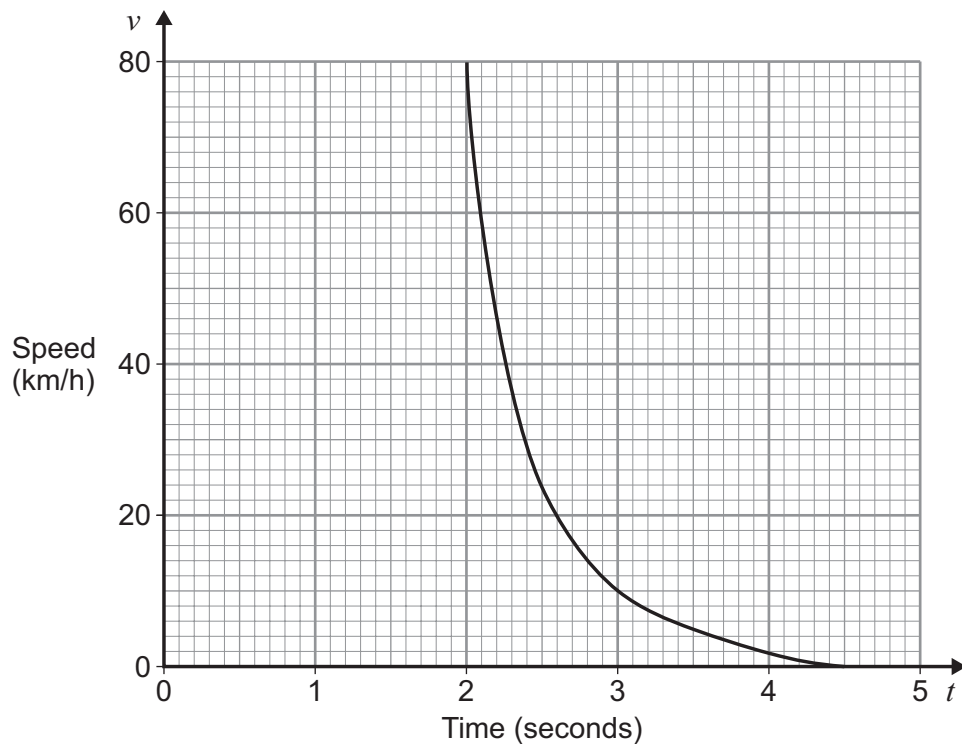
Section D

Answer **all** questions.

Answer each question in the space provided for that question.

Use Theme park ride on page 7 of the Data Sheet.

- 4 (a) The graph shows the speed, v kilometres per hour, of the Apocalypse ride between $t = 2$ and $t = 4.5$, where t seconds is the time after the ride starts to fall vertically.

The brakes are applied when $t = 2$ 

- 4 (a) (i) Use the graph to find the speed of the ride after 3 seconds.

[1 mark]

Answer _____ km/h

- 4 (a) (ii) The **speed** of the ride before the magnetic brakes are used is **directly proportional** to the **time** taken.

Complete the graph above to show the speed of the ride between $t = 0$ and $t = 2$ **[1 mark]**

- 4 (b) The speed, v kilometres per hour, of the ride and the time, t seconds, from $t = 0$ to $t = 2$ are connected by the formula

$$v = 40t$$

Use this formula to find:

- 4 (b) (i) the value of v when $t = 1.5$

[2 marks]

Answer _____

- 4 (b) (ii) the value of t when $v = 27$
Give your answer correct to one decimal place.

[3 marks]

Answer _____

7

Turn over for the next question

Turn over ►

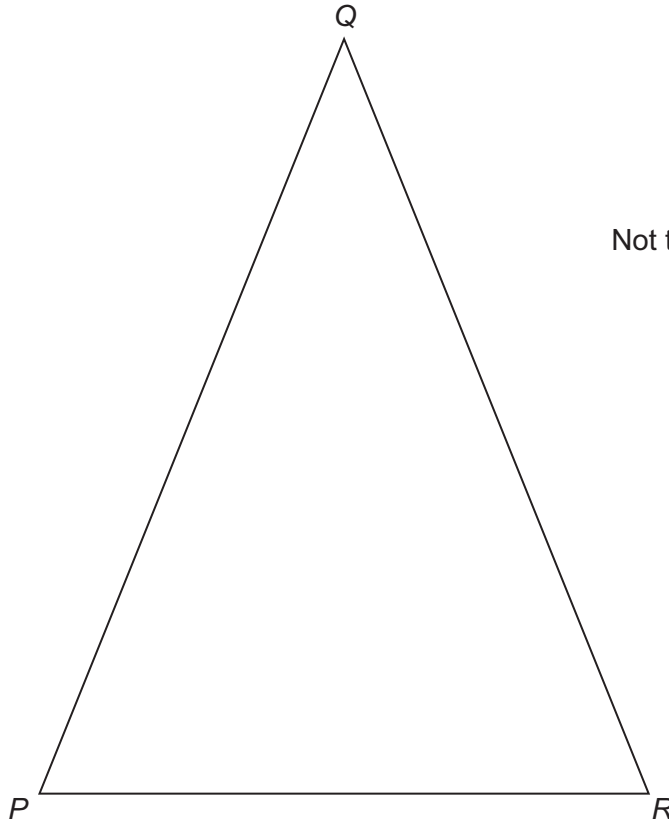


Section EAnswer **all** questions.

Answer each question in the space provided for that question.

Use Tents on page 8 of the Data Sheet.

- 5 (a)** The diagram shows one side of a teepee.



PQR is a triangle.
 PQ and RQ are equal in length.

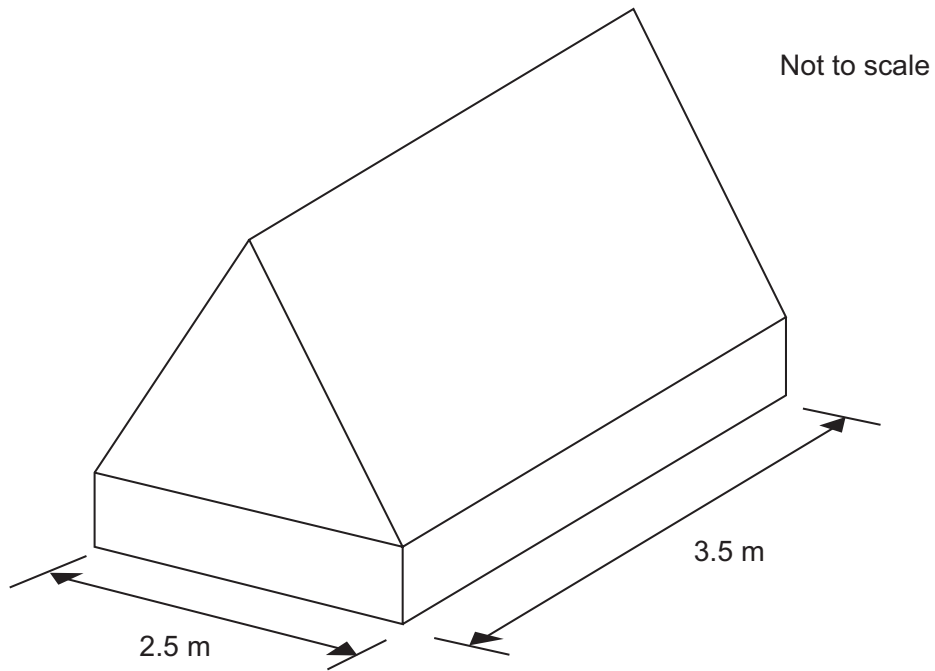
What is the name of this type of triangle?

[1 mark]

Answer _____



- 5 (b) The diagram shows a ridge tent.



The base of the tent is a rectangle with length 3.5 metres and width 2.5 metres.

Calculate the perimeter of the base of the tent.

[2 marks]

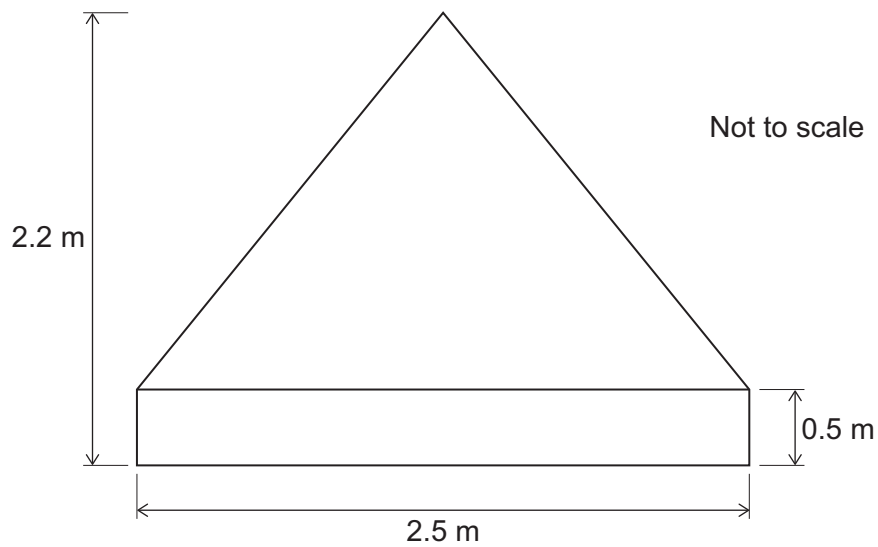
Answer _____ m

Question 5 continues on the next page

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- 5 (c) The diagram shows an end of this ridge tent.



Each end of this ridge tent is in the shape of a triangle on top of a rectangle.
The top of the triangle is 2.2 metres above the ground.

- 5 (c) (i) Calculate the area of the rectangle.

[2 marks]

Answer _____ m²

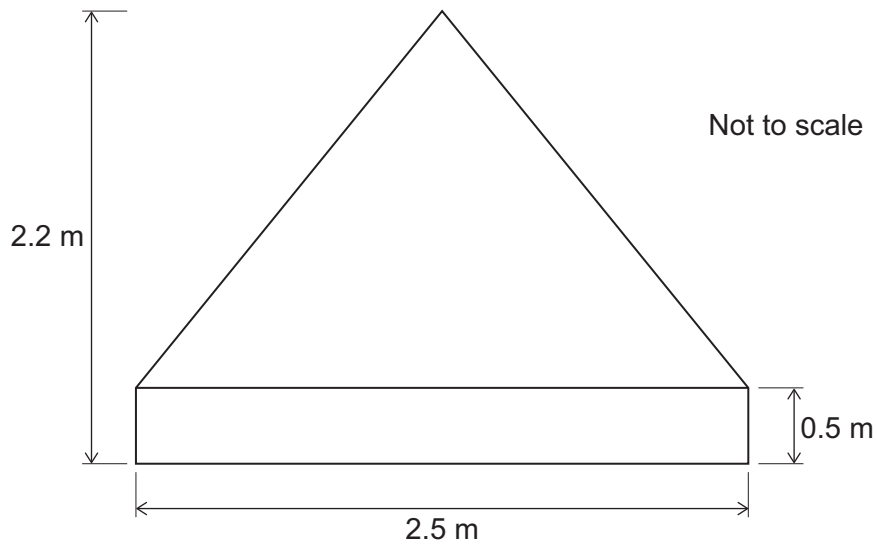
- 5 (c) (ii) Calculate the area of the triangle.

[3 marks]

Answer _____ m²



5 (c) (iii) The diagram of the ridge tent is repeated below.



Using your answers to parts (i) and (ii), calculate the volume of the tent.
Give the units of your answer.

[4 marks]

Answer _____

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END OF QUESTIONS



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