New Specification

Rewarding Learning

Centre Number

71	

Candidate Number

General Certificate of Secondary Education
2011

Mathematics

Unit T1
(With calculator)
Foundation Tier

[GMT11]

TUESDAY 31 MAY

9.15 am–10.45 am

GMT11

For Examiner's use only	
Question Number	Marks
1	
2	
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Total Marks	

TIME

1 hour 30 minutes.

INSTRUCTIONS TO CANDIDATES

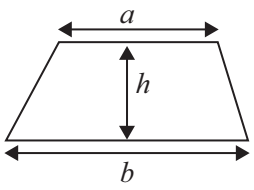
Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
Write your answers in the spaces provided in this question paper.
Answer **all twenty-three** questions.
Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.
You **may** use a calculator for this paper.

INFORMATION FOR CANDIDATES

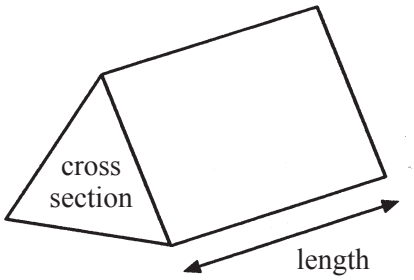
The total mark for this paper is 100.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
Functional Elements will be assessed in this paper.
Quality of written communication will be assessed in **question 15**.
You should have a calculator, ruler, compasses and a protractor.
The Formula Sheet is overleaf.

Formula Sheet

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



Volume of prism = area of cross section × length



Answer **all** questions.

Examiner Only	
Marks	Remark

1

23	75	44
50	12	47
14	49	24

(a) **From the numbers in the grid**, write down

(i) two numbers with a total of 70

Answer _____, _____ [1]

(ii) two numbers with a difference of 30

Answer _____, _____ [1]

(iii) two factors of 48

Answer _____, _____ [1]

(iv) a square number.

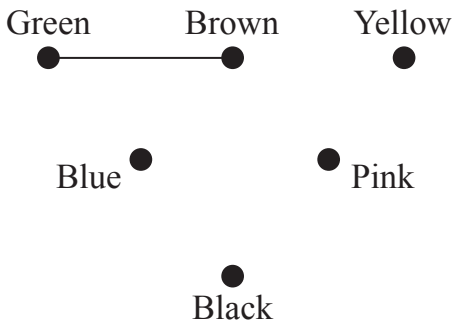
Answer _____ [1]

(b) What is the biggest number you can get by multiplying any two numbers in the grid?

Answer _____ [2]

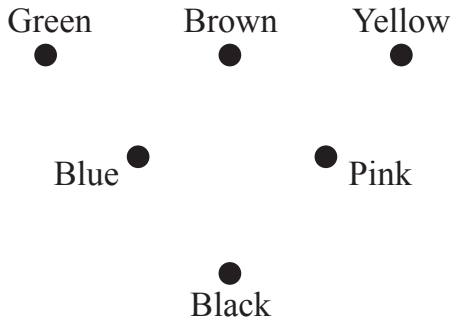
Examiner Only	
Marks	Remark

2 **(a)** Six snooker balls are spaced as shown.



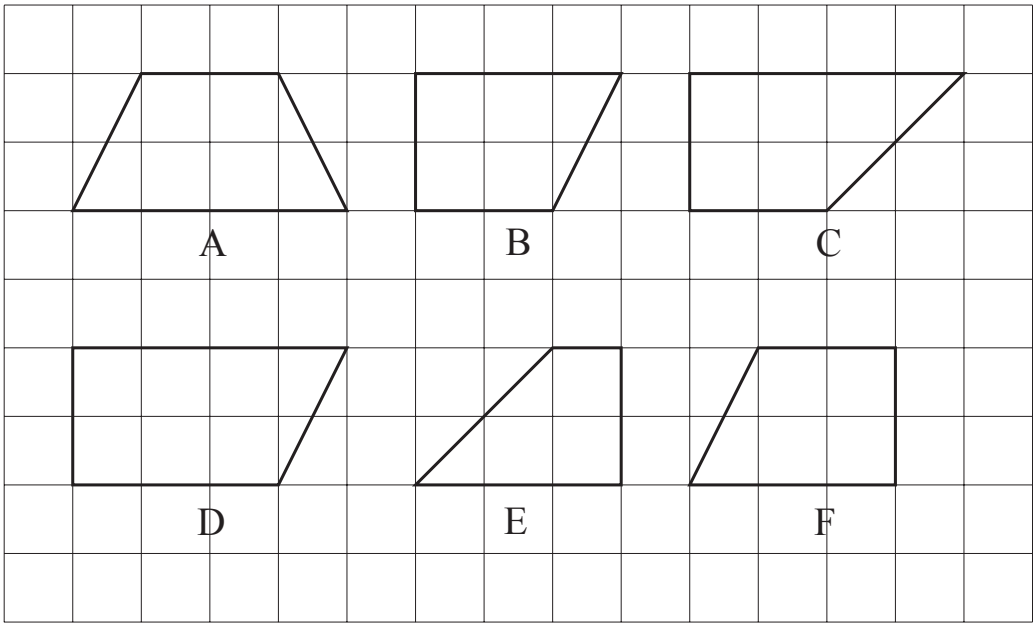
(i) On the diagram above, draw another straight line linking 2 balls to make an obtuse angle. [1]

(ii) On the diagram below draw 2 straight lines linking balls to make an acute angle. [1]



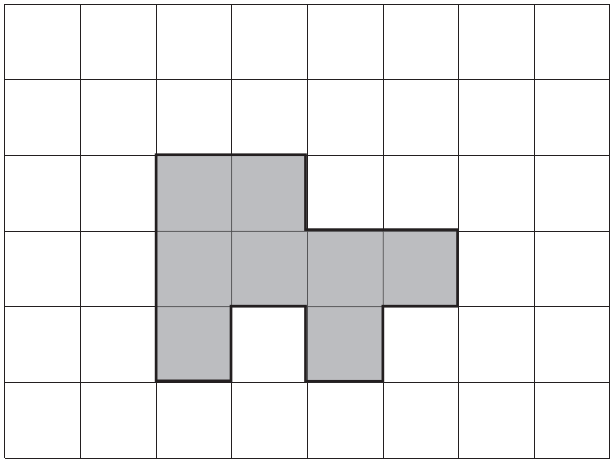
(b) Six shapes are shown.

Which two shapes are congruent?



Answer Shape _____ and shape _____ are congruent. [1]

(c) A shape is drawn on a centimetre square grid.



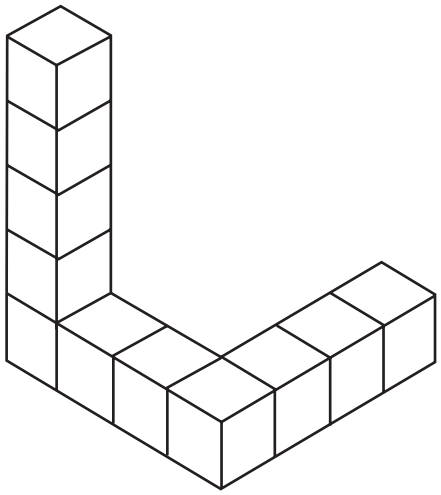
(i) Work out the perimeter of this shape (above).

Answer _____ cm [1]

(ii) Work out the area of the shape.

Answer _____ cm^2 [1]

(d) This solid is made of centimetre cubes.



What is the volume of this solid?

Answer _____ [2]

Examiner Only

Marks	Remark

Examiner Only	
Marks	Remark

3 80 cakes were sold in a bakery. The first four rows of the pictogram are shown below.

CAKE SALES

Fruit	O	O	O	O	O	
Iced Sponge	O	O	O	O		
Chocolate	O	O	O	O	O	O
Lemon	O	O				
Carrot						

(a) 24 chocolate cakes were sold.

Complete the key: O = _____ cakes [1]

(b) How many iced sponge cakes were sold?

Answer _____ [1]

(c) How many more fruit cakes than lemon cakes were sold?

Answer _____ [1]

(d) Complete the row of the pictogram for carrot cakes. [2]

Examiner Only	
Marks	Remark

4 (a)

The triangle is divided into 9 equal parts.

(i) Write down, **in its simplest form**, the fraction of the triangle which is **shaded**.

Answer _____ [2]

(ii) What **percentage** is not shaded?

Answer _____% [1]

(b) Write $\frac{2}{5}$ as a percentage.

Answer _____% [1]

(c) Write 5634 to the nearest 100

Answer _____ [1]

(d) Write down the two fractions from this list which are **not** equal to $\frac{3}{4}$

$$\frac{9}{12} \quad \frac{15}{20} \quad \frac{3}{12} \quad \frac{12}{16} \quad \frac{15}{25}$$

Answer _____, _____ [2]

5 The following scores were obtained in a test.

8, 5, 9, 6, 4, 7, 9, 8, 5, 7, 8, 6, 8, 7, 6

(a) Find

(i) the median,

Answer _____ [2]

(ii) the mode.

Answer _____ [1]

(b) **(i)** Which type of diagram would you use to display this information?

Answer _____ [1]

(ii) Give a reason for your answer.

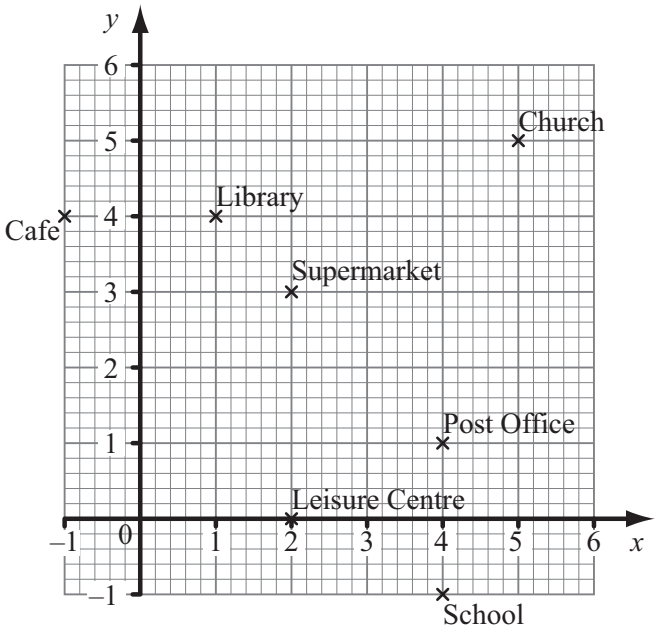
_____

_____ [1]

Examiner Only	
Marks	Remark

Examiner Only	
Marks	Remark

6



The grid shows the position of places in a town.

(a) Write down the co-ordinates of the Leisure Centre.

Answer (_____ , _____) [1]

(b) Complete the sentence:

The _____ has co-ordinates (4, –1). [1]

---

7 **(a)** 29, 25, 21, 17, ..., ...

Find the next **two** terms in the sequence and describe the rule you used.

Answers _____ , _____ Rule _____

_____ [3]

(b) Find the **next** term in the sequence

0.1, 0.3, 0.9, 2.7, ...

Answer _____ [1]

8 Look at the pattern of squares and triangles.

Examiner Only	
Marks	Remark

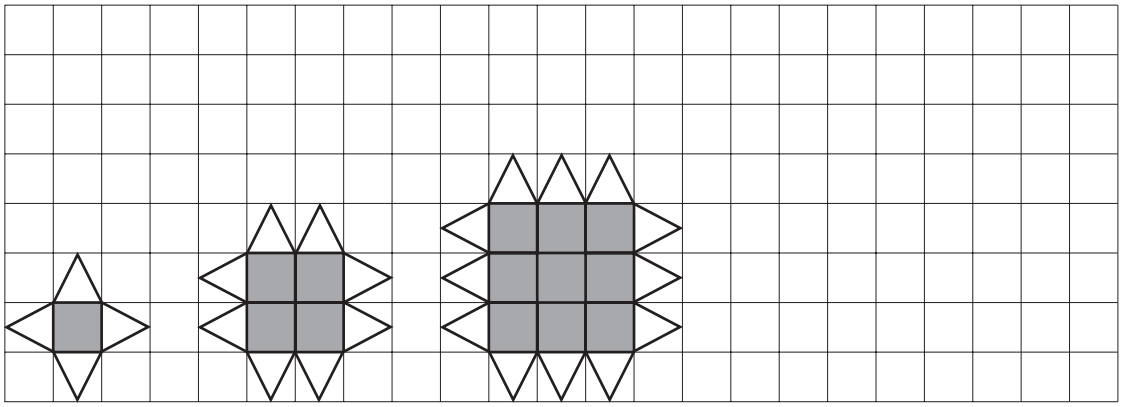


Diagram 1 Diagram 2 Diagram 3 Diagram 4

(a) On the grid, draw Diagram 4 [1]

(b) Complete the table below

Diagram	**1**	**2**	**3**	**4**	**5**
Number of squares	1	4	9		
Number of triangles	4	8	12		

[2]

(c) If the pattern was continued one diagram would have 64 squares. How many triangles would be in that diagram?

Answer _____ [2]

Examiner Only	
Marks	Remark

9 **(a)** Write down the number forty-one thousand and twenty-two in figures.

Answer _____ [1]

(b) Calculate $\sqrt{2.25}$

Answer _____ [1]

(c) Write down the largest of these three numbers.

0.4677 0.462 0.47

Answer _____ [1]

(d) Write 72.06619 correct to two decimal places.

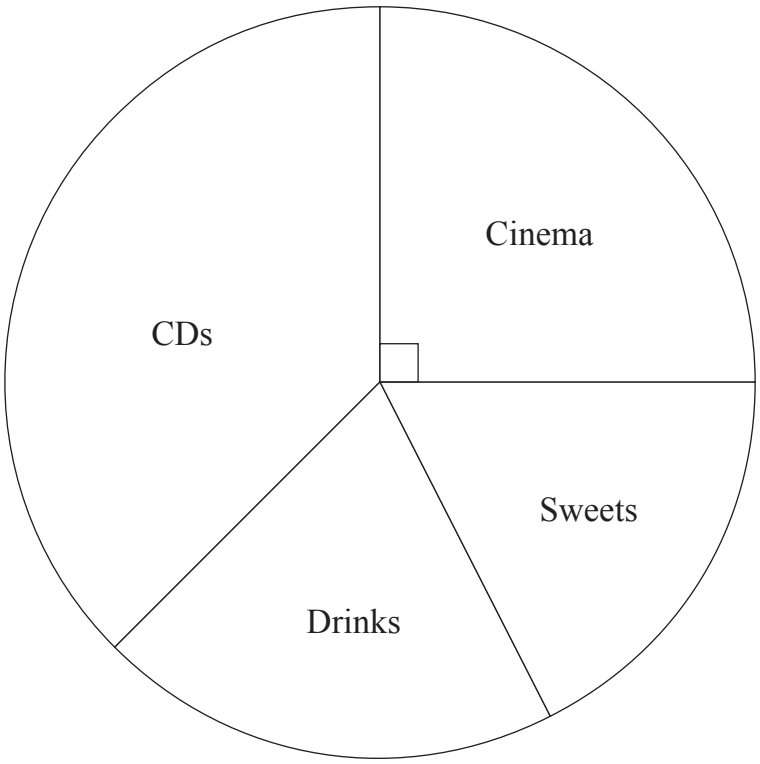
Answer _____ [1]

(e) Write 23.35 correct to three significant figures.

Answer _____ [1]

10 The pie chart shows how Angie spent £16 pocket money.

Examiner Only	
Marks	Remark



(a) How much money was spent on the cinema?

Answer £_____ [1]

(b) Calculate how much money was spent on drinks.

Answer £_____ [2]

Examiner Only	
Marks	Remark

11 The number of boys attending football practice each week was recorded.

23 13 25 16 22 15 19 16 15 16

What was the mean number of boys?

Answer _____ [3]

---

12 Renee has £20 to buy as many pens as possible at 35p each.

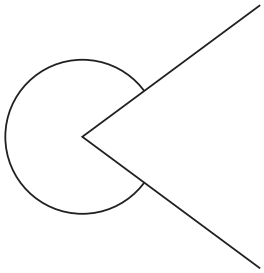
(a) How many pens can she buy?

Answer _____ [2]

(b) How much change should she get?

Answer _____ p [1]

13 **(a)** Circle the correct answer.



The angle marked is

(i) opposite **(ii)** reflex

(iii) acute **(iv)** obtuse [1]

(b) In the diagram PQR is a straight line.

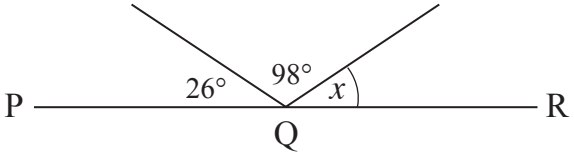


Diagram not drawn accurately

Calculate the size of the angle marked x.

Answer x = _____° [1]

Examiner Only	
Marks	Remark

(c) Calculate the size of the angle marked y.

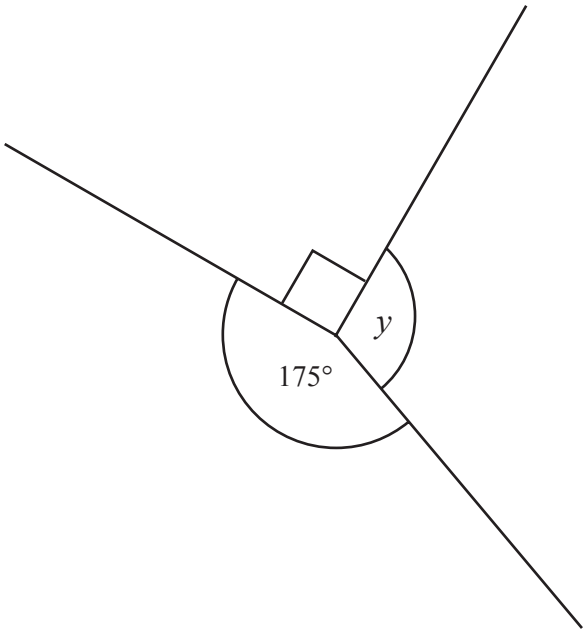
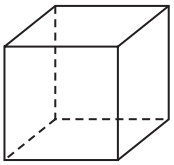


Diagram not drawn accurately

Answer $y =$ _____° [1]

(d) 

Complete the net of the cube below. [2]

Examiner Only	
Marks	Remark

14 Here is a **sketch** of a triangular field.

The side AB is 220 m long, the side AC is 120 m long and the angle BAC is 50°.

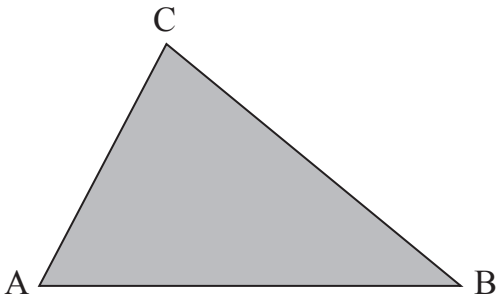


Diagram not drawn accurately

(a) Using a scale of 1 cm = 20 m, make an accurate scale drawing of the field. The line AB has already been drawn for you.

A ——————————————————— B

220 m

[2]

(b) Use your scale drawing to find the size of the angle ACB.

Answer _____ ° [1]

Examiner Only	
Marks	Remark

Quality of written communication will be assessed in this question.

Examiner Only	
Marks	Remark

15 John bought 20 apples and 6 pears. The total cost was £6.90. Apples cost £1.20 for 5. What was the cost of one pear?

Explain clearly how you calculate the answer.

Answer _____ [4]

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16 **(a)** $5a = 14$ Write down the value of $15a$

Answer _____ [1]

(b) Solve $3t - 7 = 5$

Answer $t =$ _____ [2]

17 **(a)** The stem and leaf diagram shows the weights of bags of onions.

3	5 7 8 9
4	2 5 6 8 9 9
5	1 3 4

Key 3 | 5 = 3.5 kg

Write down

(i) the range,

Answer _____ kg [1]

(ii) the median.

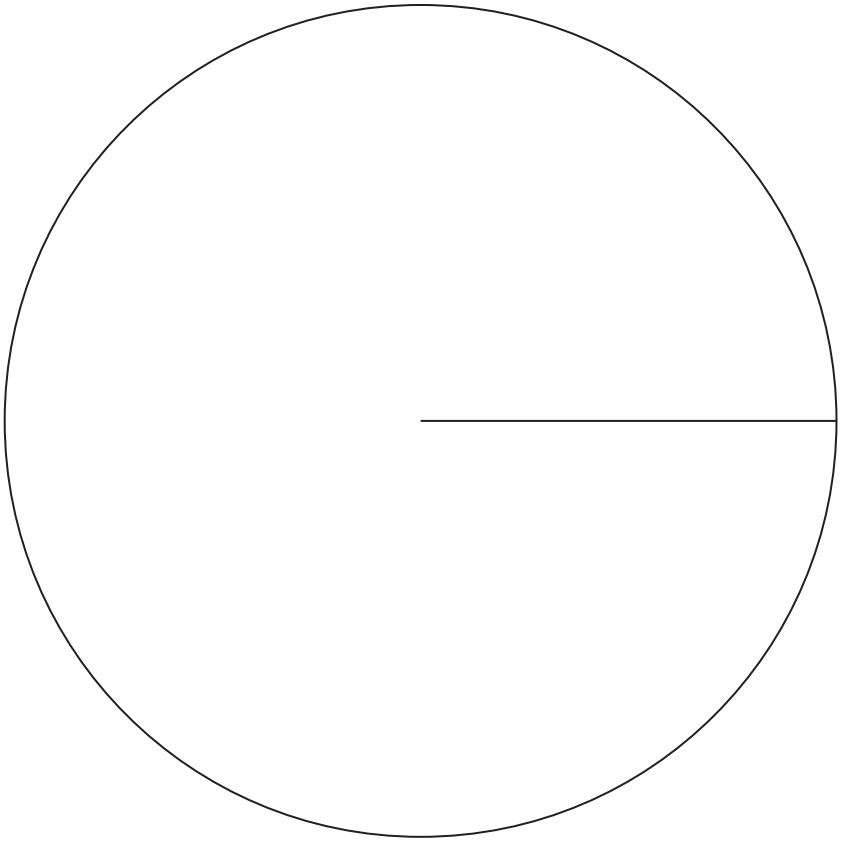
Answer _____ kg [1]

Examiner Only	
Marks	Remark

(b) The number of buns sold in a bakery was recorded as follows.

Cream	16
Fruit	10
Jam	9
Chocolate	25

Draw a pie chart to illustrate this information.

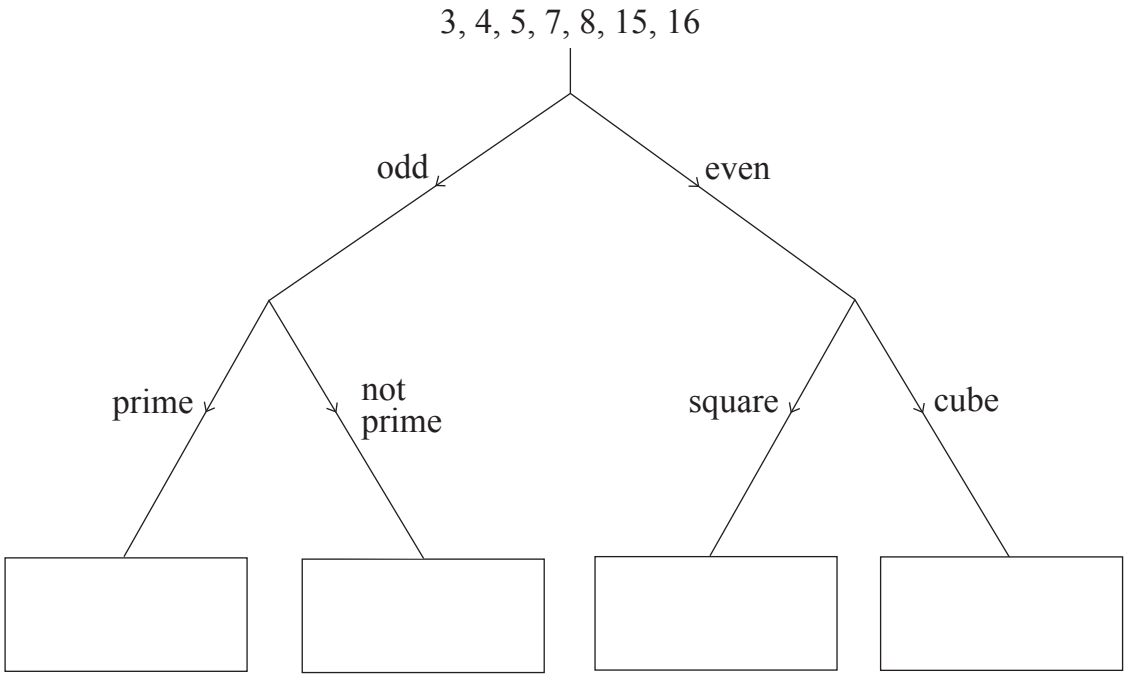


[4]

Examiner Only	
Marks	Remark

Examiner Only	
Marks	Remark

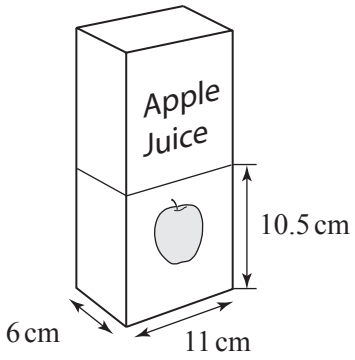
18 Using the decision tree diagram, sort these numbers into the correct boxes.



[2]

19 **(a)** A rectangular carton holds apple juice. The base of the carton has dimensions of 6 cm and 11 cm. The height of the juice in the carton is 10.5 cm above the base. (1 cm^3 = 1 ml)

What is the volume of juice left in the carton in millilitres?



Answer _____ ml [2]

(b) John pours himself a glass of juice. The volume in the carton is now 412.5 ml. What is the height of the juice above the base now?

Answer _____ cm [2]

20 Aine buys 500 g of beef mince at £8.30 per kg and 300 g of pork mince at £9.50 per kg.

Barney buys 400 g of lamb mince at £10.20 per kg and 400 g of sausage meat at £7.00 per kg.

Who pays more and by how much?

Answer _____ pays _____ more [6]

Examiner Only

Marks	Remark

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21 **(a)** Calculate

(i) the cube root of 64

Answer _____ [1]

(ii) $3.3^2 + 6^3$

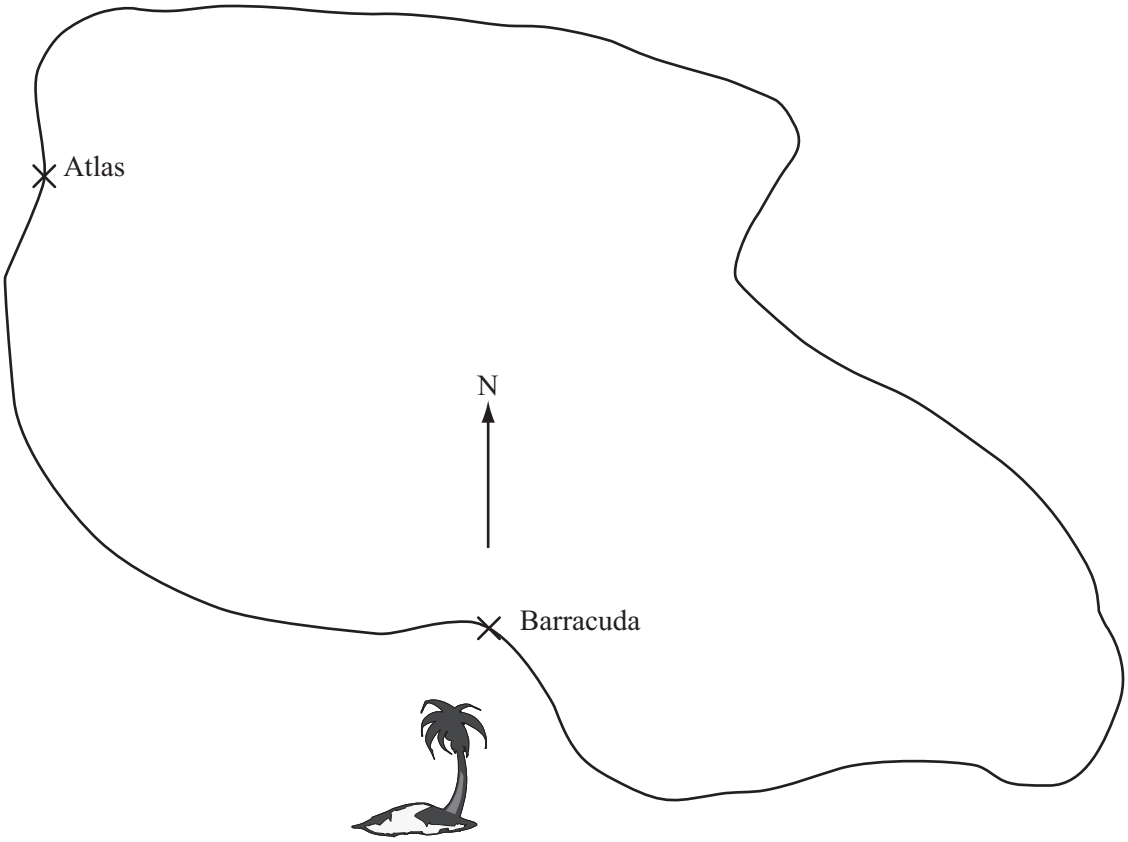
Answer _____ [1]

(b) Write down a prime number between 48 and 58.

Answer _____ [1]

22 An outline map of Tanua Island is shown.

The Atlas and the Barracuda are two hotels on this island.



Scale: 1 cm to 5 km

(a) Use the diagram to calculate the actual distance of the Atlas from the Barracuda.

Answer _____ km [2]

(b) A new hotel, the Capri, is being built 25 km North East of the hotel Barracuda. Mark the correct position of this new hotel. [2]

(c) What is the direction of the Barracuda from the new hotel?

Answer _____ [1]

Examiner Only	
Marks	Remark

Examiner Only	
Marks	Remark

23 Andrew earns £900 a month. He spends $\frac{1}{4}$ of this money on rent and $\frac{1}{5}$ on computer games. What fraction of the £900 has he left?

Answer _____ [4]

THIS IS THE END OF THE QUESTION PAPER