



General Certificate of Secondary Education  
2018

Centre Number

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Candidate Number

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# Mathematics

Unit T1  
(With calculator)  
Foundation Tier



[GMT11]

\*GMT11\*

**THURSDAY 24 MAY, 9.15am–10.45am**

## 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.

**You must answer the questions in the spaces provided.**

**Do not write outside the boxed area on each page or on blank pages.**

Complete in black ink only. **Do not write with a gel pen.**

Answer **all twenty-five** questions.

All working should be clearly shown in the spaces provided. 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 22.

You should have a calculator, ruler, compasses and a protractor.

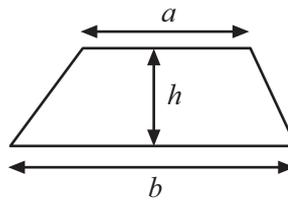
The Formula Sheet is on page 2.

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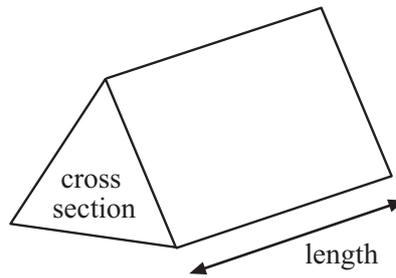


# Formula Sheet

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

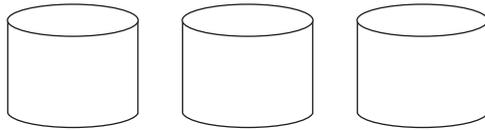


**Volume of prism** = area of cross section  $\times$  length

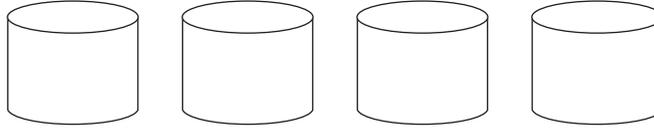


1 The pictogram shows the amount of paint sold.

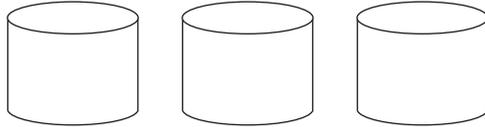
Gloss



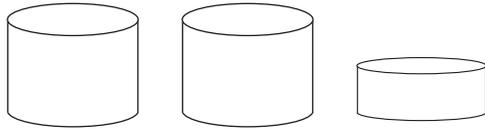
Satin



Matt

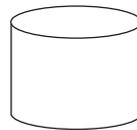


Outdoor



Undercoat

(a) 30 litres of matt paint were sold. Complete the key.



represents \_\_\_\_ litres [1]

(b) How many litres of satin paint were sold?

Answer \_\_\_\_\_ [1]

(c) How many more litres of gloss than outdoor paint were sold?

Answer \_\_\_\_\_ [1]

(d) 160 litres of paint were sold. Complete the pictogram for undercoat. [2]

[Turn over



2 Write down

(a) a multiple of 11 between 50 and 60, Answer \_\_\_\_\_ [1]

(b) a factor of 65 between 10 and 20, Answer \_\_\_\_\_ [1]

(c) two numbers less than 10 whose sum is 17,  
Answer \_\_\_\_\_ and \_\_\_\_\_ [1]

(d) two numbers less than 10 whose difference is 8,  
Answer \_\_\_\_\_ and \_\_\_\_\_ [1]

(e) two numbers less than 10 whose product is 42  
Answer \_\_\_\_\_ and \_\_\_\_\_ [1]

3 Circle the best answer for each of the following.

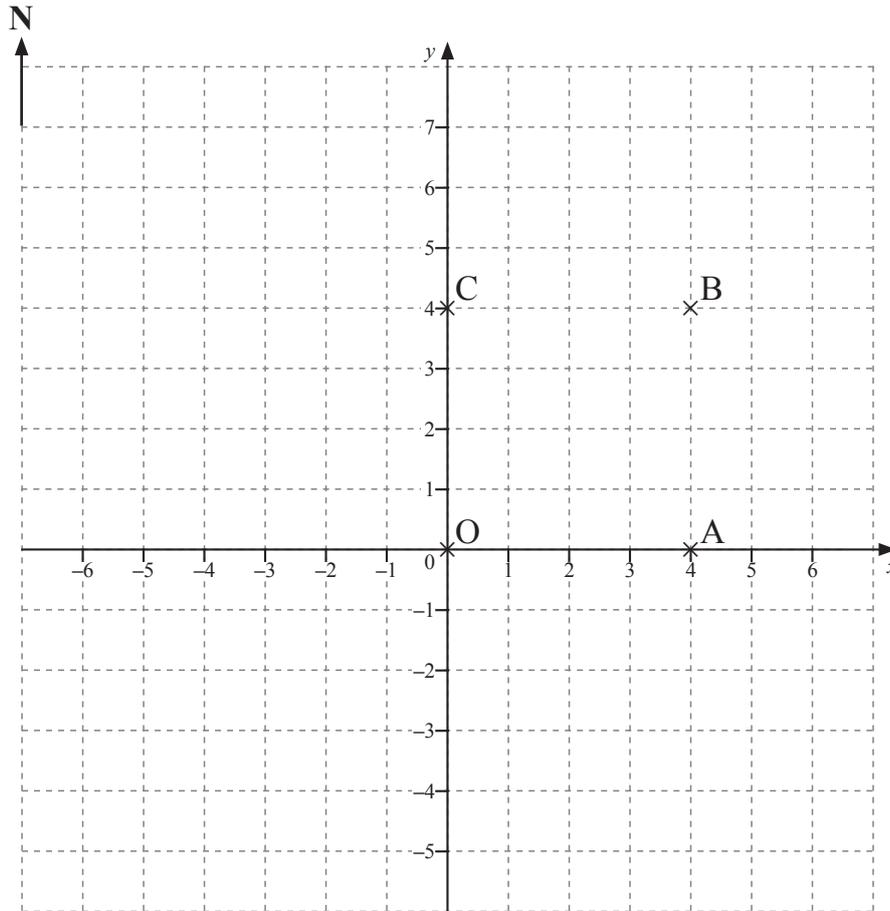
(a) Distance from Belfast to Dublin  
16 km      160 km      1600 km      [1]

(b) Capacity of a coffee mug  
2 ml      20 ml      200 ml      [1]

(c) Weight of a sugar cube  
5 g      50 g      500 g      [1]



4



(a) Complete the sentences, using compass directions.

(i) C is North of O and A is \_\_\_\_\_ of O. [1]

(ii) C is \_\_\_\_\_ of A. [1]

(iii) O is \_\_\_\_\_ of B. [1]

(b) D is West of C and North-West of O.

What are the coordinates of D?

Answer ( \_\_\_\_\_ , \_\_\_\_\_ ) [2]

[Turn over



5

## PRICE LIST

Carrots	85p per kg
Baby potatoes	£1.20 per kg
Baking potatoes	£1 for 4
Cauliflower	£1.35 each
Cabbage	95p each
Sprouts	£1.50 per kg
Onions	90p per kg

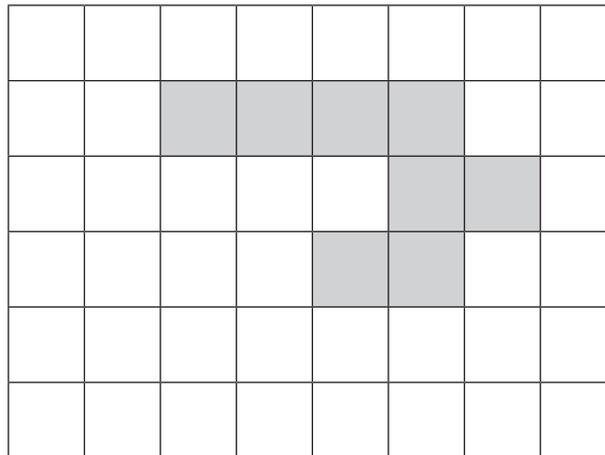
Ciaran buys 2 kg of carrots,  $\frac{1}{2}$  kg of onions, a cabbage and 8 baking potatoes.

What change should he get from £10?

Answer £ \_\_\_\_\_ [4]



6 Look at the shape drawn below on a cm grid.



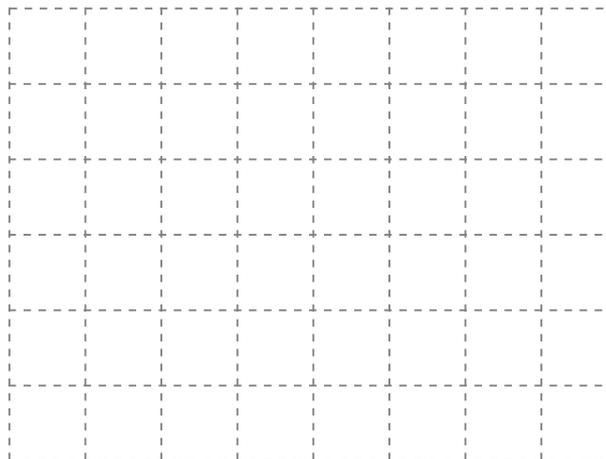
(a) What is the area of the shaded shape?

Answer \_\_\_\_\_ [2]

(b) What is the perimeter of the shaded shape?

Answer \_\_\_\_\_ cm [1]

(c) Draw another shape on the grid below which has the same perimeter but a different area.

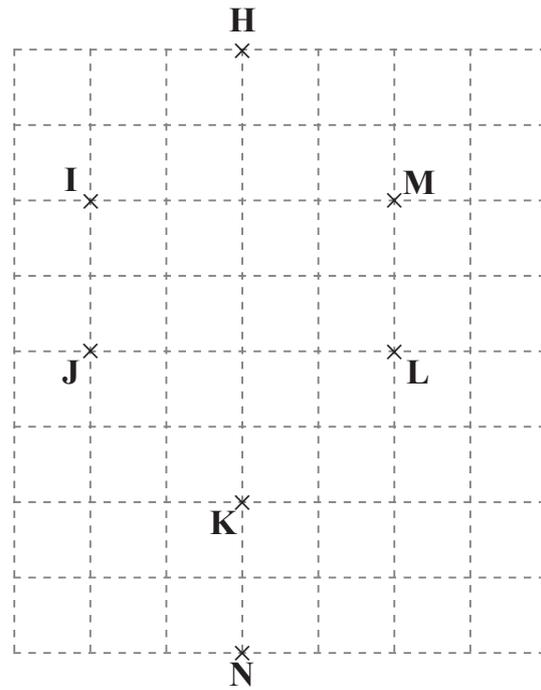
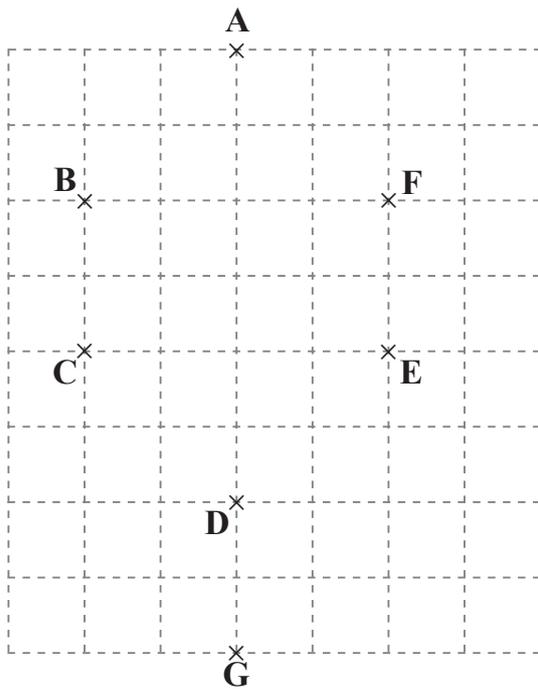


[2]

[Turn over



7



(a) Write down the name of shape

(i) ACDE,

Answer \_\_\_\_\_ [1]

(ii) ACDF,

Answer \_\_\_\_\_ [1]

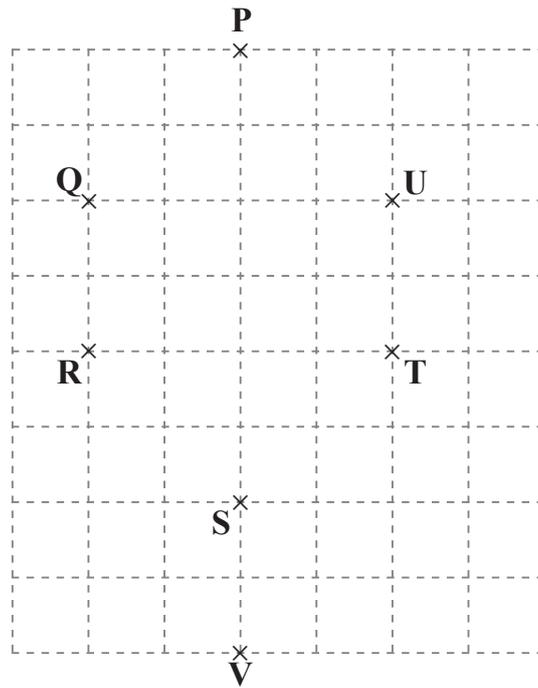
(iii) HJNL,

Answer \_\_\_\_\_ [1]

(iv) HIJK.

Answer \_\_\_\_\_ [1]





(b) What type of triangle is

(i) PRT,

Answer \_\_\_\_\_ [1]

(ii) QRT?

Answer \_\_\_\_\_ [1]

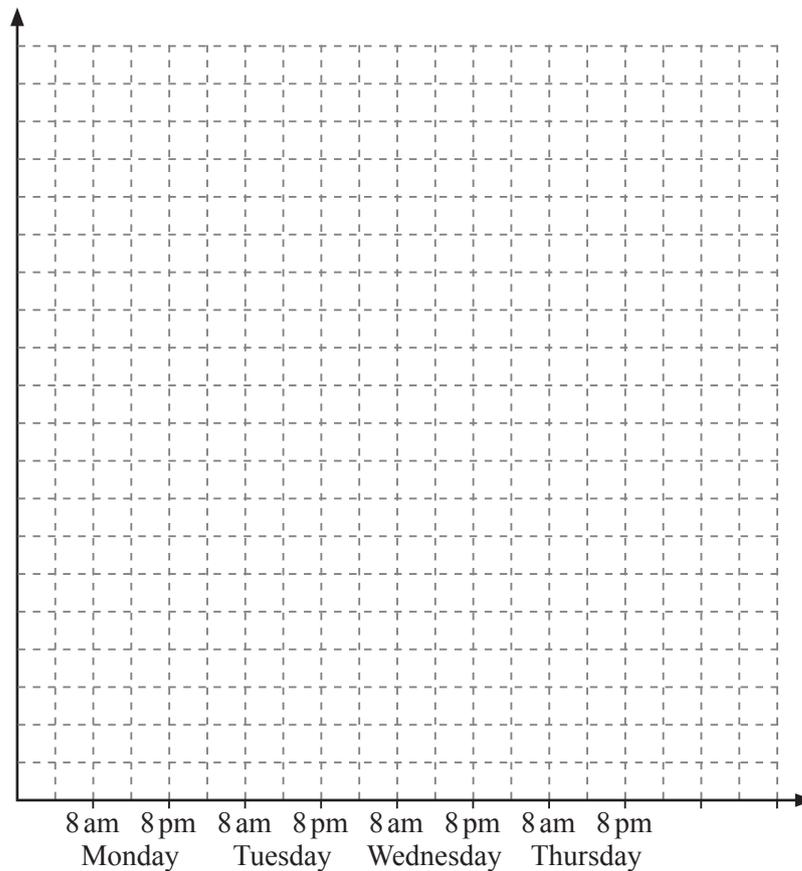
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8 The temperature was recorded every twelve hours.

Time	Temperature
Monday 8 am	6°C
Monday 8 pm	3°C
Tuesday 8 am	5°C
Tuesday 8 pm	5°C
Wednesday 8 am	7°C
Wednesday 8 pm	8°C
Thursday 8 am	6°C
Thursday 8 pm	2°C

(a) Draw a line graph on the grid to show these temperatures.



[3]



(b) Calculate the mean temperature.

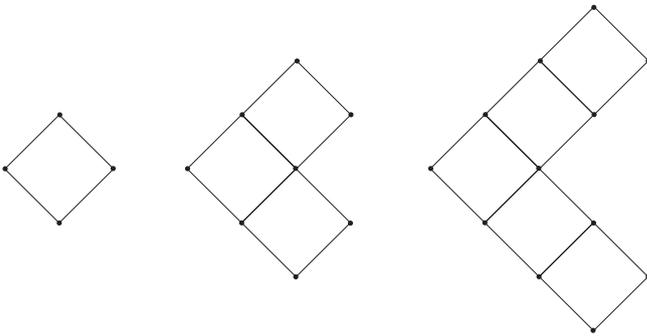
Answer \_\_\_\_\_ °C [3]

(c) What is the median temperature?

Answer \_\_\_\_\_ °C [2]



9 Patterns are made using matchsticks.



Pattern 1

Pattern 2

Pattern 3

Pattern 4

(a) Draw Pattern 4.

[1]

(b) Complete the following table.

Pattern Number	1	2	3	4
Number of matchsticks	4	10		

[1]

(c) Describe how the number of matchsticks in the shape changes as each new pattern is made.

\_\_\_\_\_

[1]

(d) What is the number of matchsticks in Pattern 11?

Answer \_\_\_\_\_ [2]



10 Company A made 4200 cars in a year.

35% of these were sports cars.

Company B made 125 sports cars each month.

Which company made more sports cars and how many more?

Show your working clearly.

Answer Company \_\_\_\_\_ made \_\_\_\_\_ more sports cars [4]

[Turn over



11 (a) I think of a number, multiply it by 3 and then add 1

The answer is 28

What was the number?

Answer \_\_\_\_\_ [2]

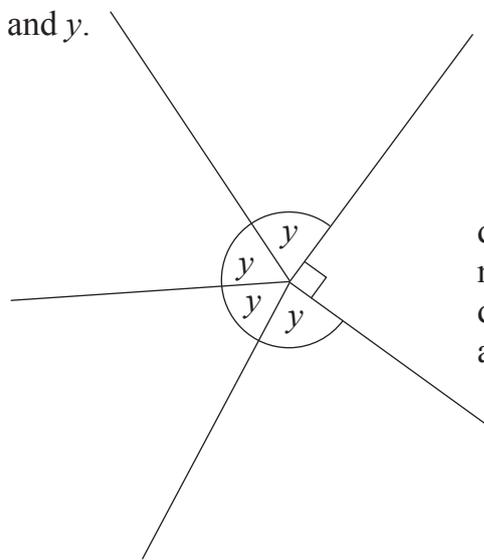
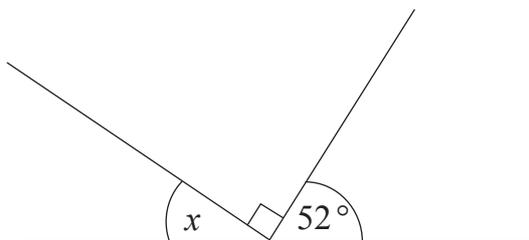
(b) I think of a number, subtract 1 from it and then divide by 4

The answer is 3

What was the number?

Answer \_\_\_\_\_ [2]

12 Calculate the size of the angles marked  $x$  and  $y$ .



diagrams  
not  
drawn  
accurately

Answer  $x =$  \_\_\_\_\_ [1]

$y =$  \_\_\_\_\_ [2]



13 The midday temperatures on six days were

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
$-1^{\circ}\text{C}$	$-3^{\circ}\text{C}$	$-2^{\circ}\text{C}$	$0^{\circ}\text{C}$	$1^{\circ}\text{C}$	$4^{\circ}\text{C}$

(a) On what day was the coldest midday temperature?

Answer \_\_\_\_\_ [1]

(b) Which two days differ most in midday temperature?

Answer \_\_\_\_\_ and \_\_\_\_\_ [1]

(c) The midday temperature on Sunday was  $2^{\circ}\text{C}$  warmer than Monday.

What was the midday temperature on Sunday?

Answer \_\_\_\_\_  $^{\circ}\text{C}$  [1]

14 Solve

(a)  $6x = 18$

Answer  $x =$  \_\_\_\_\_ [1]

(b)  $5 + x = 21$

Answer  $x =$  \_\_\_\_\_ [1]

[Turn over

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\*28GMT1115\*



17 Write in order, from smallest to largest,

$$0.81 \quad \sqrt{0.81} \quad 0.81^2$$

Answer \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ [2]

18 (a) Calculate  $0.7^2 + \sqrt{5.76}$

Answer \_\_\_\_\_ [1]

(b) Without using a calculator, show how to work out the value of  $7^3 \times 10^2$

Answer \_\_\_\_\_ [2]

[Turn over

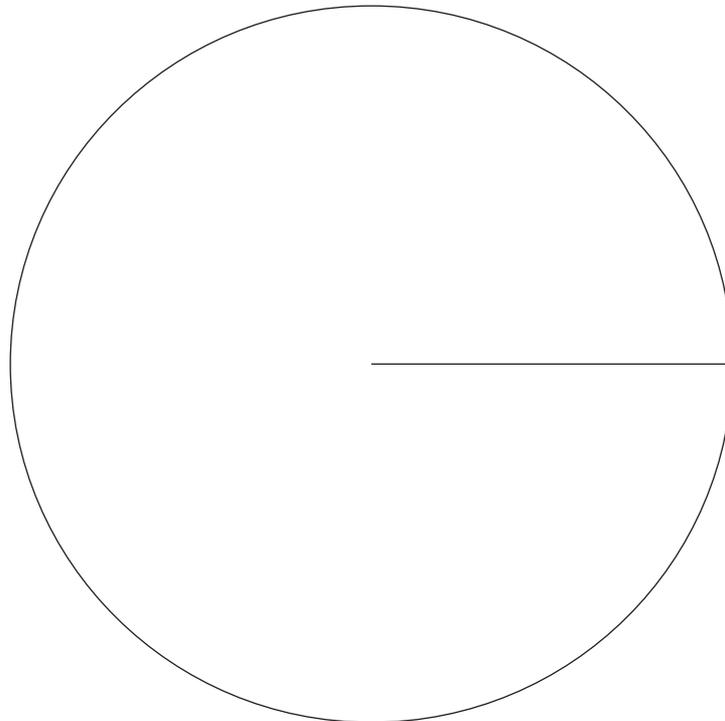


19 120 people work for an I.T. company.

The table below shows how they get to work.

Car	56
Walk	21
Bus	35
Train	8

Draw a pie chart below to show this data.



[4]



20 Paula paid £175 for 50 pens.

She sold 60% of them at £4 each.

She then reduced the price by £1.50 each and sold the rest.

Did she make a profit or loss?

How much was this profit or loss?

Answer \_\_\_\_\_ of £ \_\_\_\_\_ [6]

[Turn over

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\*28GMT1119\*

- 21 The life expectancy for males in 12 countries in Africa for 2015 is shown in the following stem and leaf diagram.



Key: 5 | 3 means 53 years

- (a) How many of these countries had a life expectancy for males of less than 58 years?

Answer \_\_\_\_\_ [1]

- (b) For the above data work out

- (i) the median,

Answer \_\_\_\_\_ years [1]

- (ii) the range.

Answer \_\_\_\_\_ years [1]



(c) In **1975** the life expectancy for males in the same 12 countries had a median of 49 years and a range of 30 years.

Compare the life expectancy for males in these 12 countries in **2015** with the life expectancy for males in **1975**

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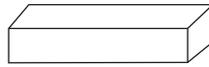
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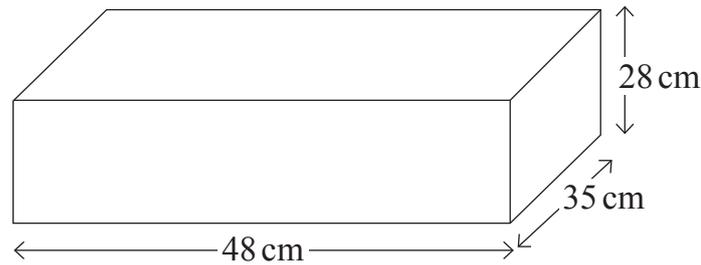
Quality of written communication will be assessed in this question.

- 22 The packaging for a tube of toothpaste is a cuboid measuring  $16\text{ cm} \times 5\text{ cm} \times 4\text{ cm}$ .



The manufacturer wants to be able to pack 150 of these tubes into a cardboard box. The box is a cuboid.

The box measures  $48\text{ cm} \times 35\text{ cm} \times 28\text{ cm}$ .

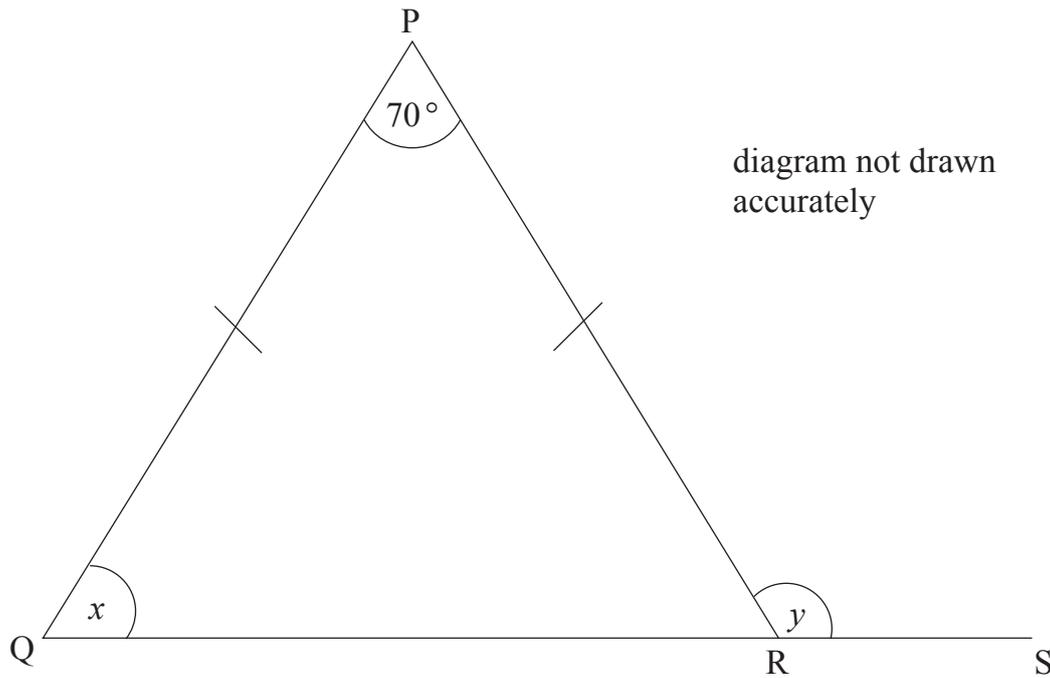


Will the box be big enough to hold 150 tubes of toothpaste in their packaging?  
You must show working to explain your answer.

Answer \_\_\_\_\_ [3]



23



PQR is an isosceles triangle with  $PQ = PR$ .  
QRS is a straight line.

(a) Work out the size of the angle marked  $x$ .

Answer \_\_\_\_\_ ° [2]

(b) Work out the size of the angle marked  $y$ .

Answer \_\_\_\_\_ ° [1]

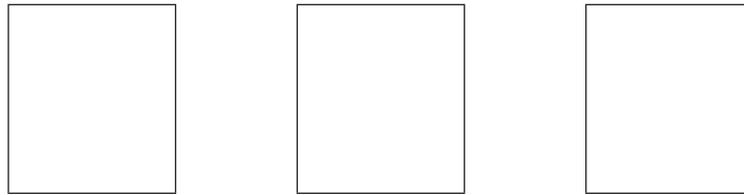
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\*28GMT1123\*

24 There are 3 cards.



Each card has a number on it.  
 The mode of the 3 numbers is 7  
 The mean of the 3 numbers is 9  
 Work out the 3 numbers on the cards.

Answer \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ [2]

25 (a) Simplify  $7c - 3d - 2c + 2d$

Answer \_\_\_\_\_ [2]

(b) Solve

(i)  $\frac{x}{3} = 9$

Answer  $x =$  \_\_\_\_\_ [1]

(ii)  $5y + 4 = 23$

Answer  $y =$  \_\_\_\_\_ [2]



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<b>Total Marks</b>	
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