cea
Rewarding Learning

General Certificate of Secondary Education
January 2019

Mathematics

Unit T1
(With calculator)

Foundation Tier

[GMT11]   *GMT11*

TUESDAY 8 JANUARY, 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-eight** 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 **18**.
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 = $\frac{1}{2}(a + b)h$
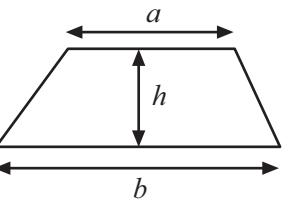
Volume of prism = area of cross section × length

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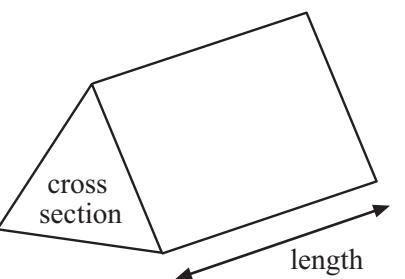
1 Barry is drawing a pictogram to show the number of rugby badges he has.

Ulster
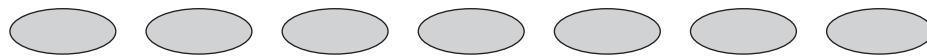
Connaught

Munster

Leinster

Key ⬭ = 4 badges

(a) How many Ulster badges does he have?

Answer _____ [1]

(b) How many more Munster than Connaught badges does he have?

Answer _____ [1]

(c) He has 14 Leinster badges.

Complete the pictogram to show this. [1]

(d) How many badges does he have altogether?

Answer _____ [1]

[Turn over

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2

| 6 | 9 | 12 | 25 | 27 | 53 | 63 | 68 | 70 |

(a) From the list of numbers, write down

    (i) two multiples of 5,   Answer _____, _____ [1]

    (ii) two factors of 60,   Answer _____, _____ [1]

    (iii) two square numbers,   Answer _____, _____ [1]

    (iv) a cube number,   Answer _____ [1]

    (v) a prime number.   Answer _____ [1]

(b) Write down the smallest square number that is larger than the numbers in the list.

                                                 Answer _____ [1]

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3

> **Pencils 25p each   Markers 55p each**
>
> **Crayons 20p each**

(a) Jo bought 4 pencils and 2 markers.

How much did she pay?

Answer £ _____ [1]

(b) James bought 5 crayons and some pencils.

He paid £2.50

How many pencils did he buy?

Answer _____ [2]

(c) Trudie paid 95p.

Give two different suggestions for what she might have bought.

Answer **(i)** _____ [1]

   (ii) _____ [1]

[Turn over

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28GMT1105

4

Day	Attendance at festival
Friday	5730
Saturday	12 381
Sunday	8465

(a) Write the attendance on Friday in words.

Answer _____ [1]

(b) What was the attendance on Saturday, to the nearest hundred?

Answer _____ [1]

(c) (i) How much bigger was the attendance on Sunday than Friday?

Answer _____ [1]

(ii) Show how to work this out without using a calculator.

[2]

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5 **Distance between towns (miles)**

Ardill					
12	Beesley				
26	14	Cargo			
15	10	16	Dunn		
20	15	21	5	Eeme	
27	22	22	12	7	Frame

(a) What is the distance from Ardill to Cargo?

Answer _____ miles [1]

(b) Jan travelled from Cargo to Dunn and then from Dunn to Ardill.

How many miles did she travel?

Answer _____ miles [1]

(c) Do you think the road from Dunn to Frame passes through Eeme?

Explain your answer.

Answer _____ because _____

_____ [1]

[Turn over

28GMT1107

6

CHURCH

SCHOOL •   ×   • PARK
                Brenda

• GARAGE   • GYM
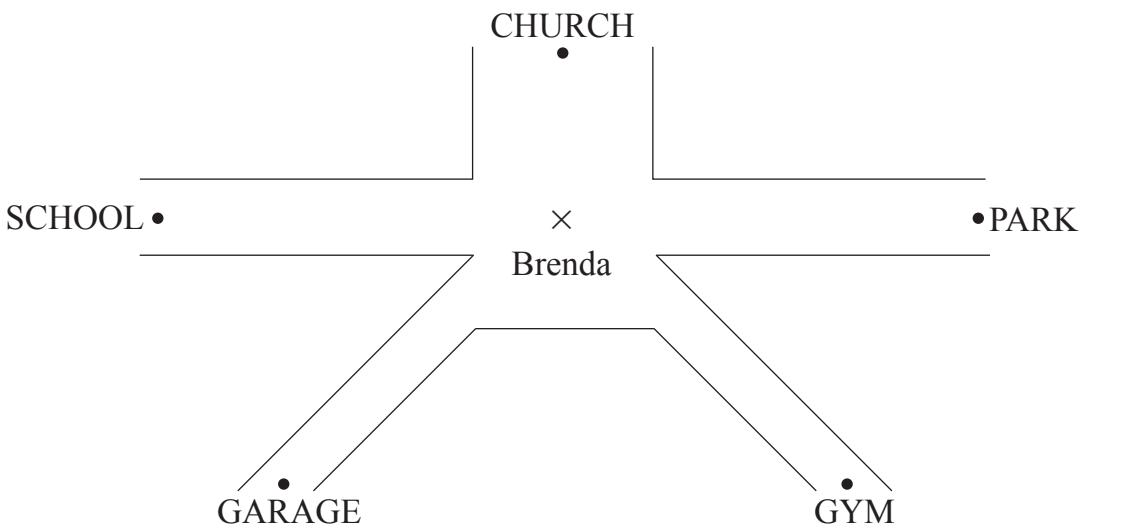
(a) Brenda is standing at the crossroads facing the church.

She makes a quarter turn clockwise.

What is she facing now?

Answer _____ [1]

(b) She then turns 180°

What is she facing now?

Answer _____ [1]

(c) Sam is standing at the crossroads, facing the church.

How many degrees must he turn to face the gym if he turns clockwise?

Answer _____° [1]

7 Tom recorded the colour of cars in a car park.

Colour	Tally	Frequency
Silver	ⵉⵏⵏ ⵏⵏ ⵏⵏⵏ	14
White	ⵏⵏ ⵏⵏⵏ	
Black	ⵏⵏ	
Red	ⵏⵏ ⵏⵏ ⵏ	

(a) Complete the frequency table above. [1]

(b) Draw a bar chart on the grid below to show this information.
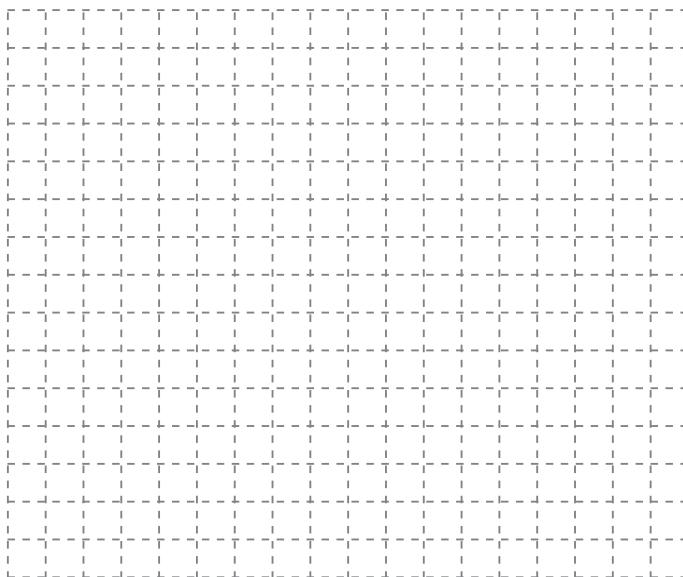
[3]

(c) What was the most popular colour? Answer _____ [1]

(d) What was the total number of cars recorded?

Answer _____ [1]

[Turn over

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28GMT1109

8 Write down the next term in each sequence.

(a) 3, 6, 9, 12, _____ [1]

(b) 21, 17, 13, 9, _____ [1]

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28GMT1110

9 The prices of some books are

| £8 | £10 | £12 | £14 | £16 | £16 | £19 |
| £9 | £11 | £13 | £15 | £16 | £17 | £34 |

Find the

(a) mode,

Answer £ _____ [1]

(b) median,

Answer £ _____ [2]

(c) mean,

Answer £ _____ [2]

(d) range.

Answer £ _____ [1]

[Turn over

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10
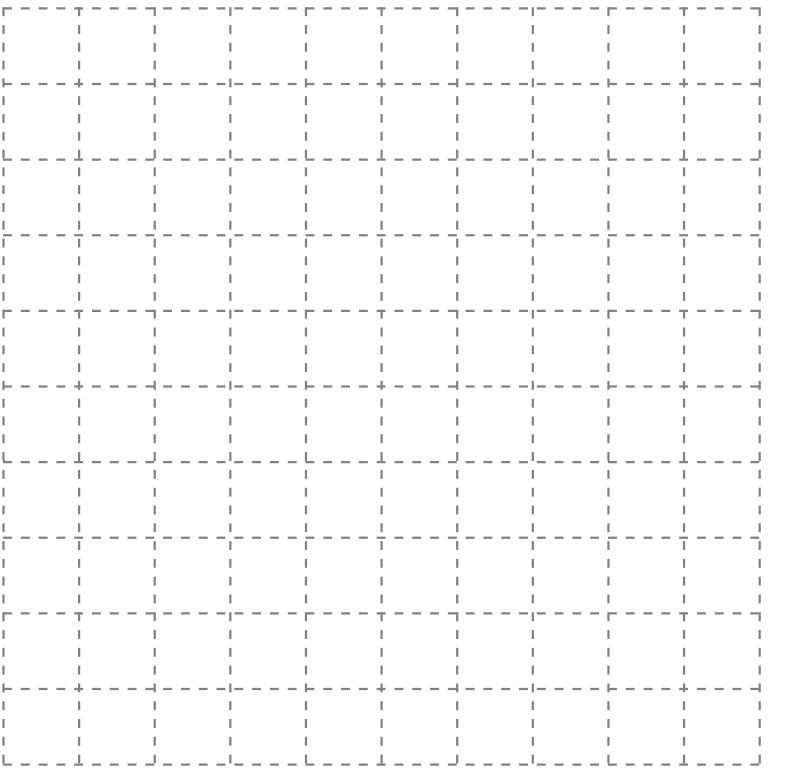
On the 1 cm grid above, draw

(a) a shape with area 8 cm^2

Label it A.   [1]

(b) a shape with perimeter 6 cm.

Label it P.   [1]

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28GMT1112

11 (a) Thinking of angles, circle the odd one out:

square   rectangle   parallelogram   [1]

(b) Thinking of lengths of sides, circle the odd one out:

square   kite   rhombus   [1]

(c) Thinking of parallel sides, circle the odd one out:

trapezium   parallelogram   rhombus   [1]

(d) Thinking of length, circle the odd one out:

10 cm   100 mm   1 m   [1]

[Turn over

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28GMT1113

12
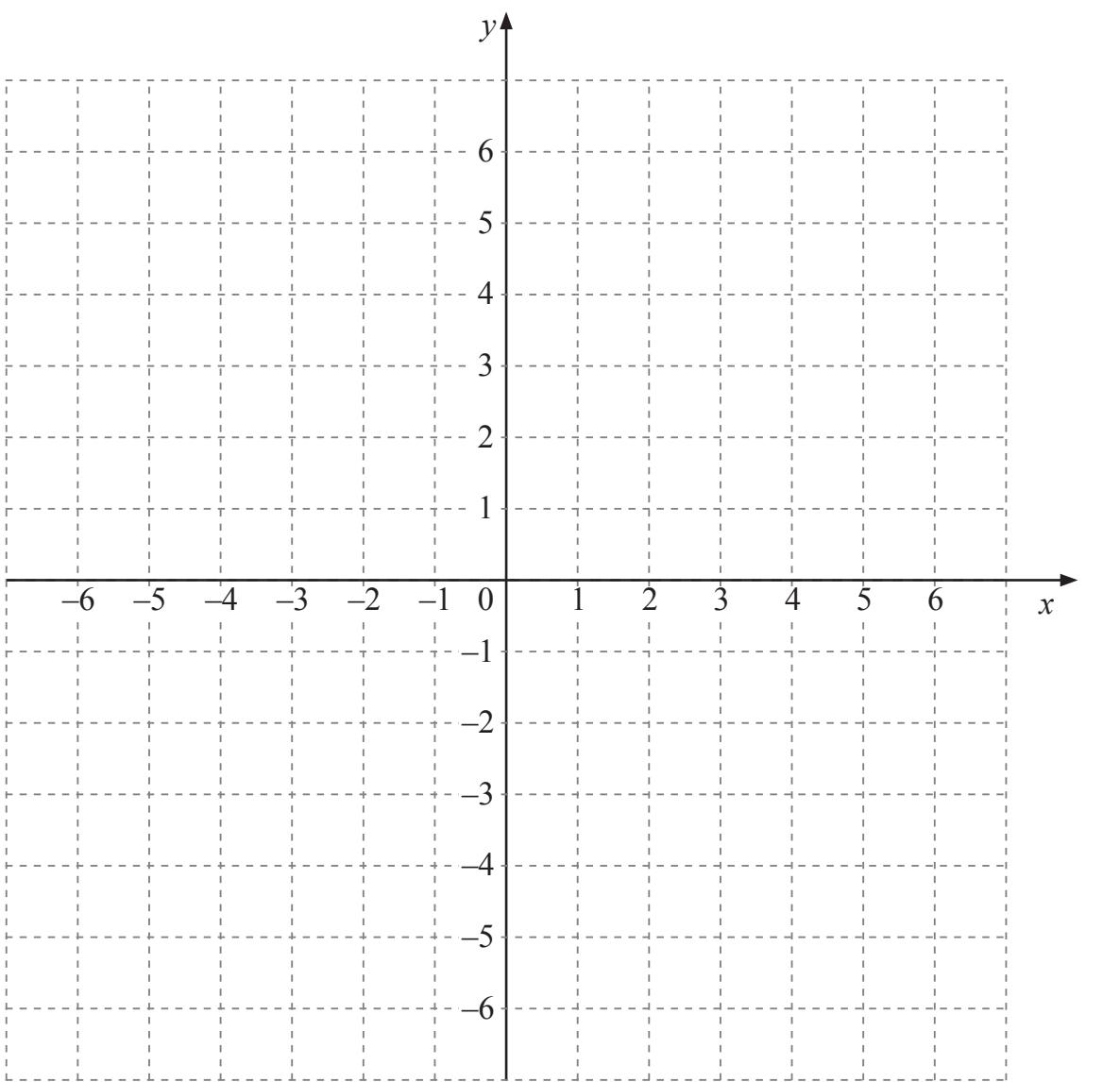
Plot and label the points A (3, −3) and B (−4, −1)   [2]

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28GMT1114

13   TEMPERATURES

Moscow	Riga	Berlin	Bucharest
−8°C	−5°C	−1°C	2°C

(a) What is the difference in temperature between Moscow and Berlin?

Answer _____ °C [1]

(b) What is the difference in temperature between Riga and Bucharest?

Answer _____ °C [1]

(c) The temperature in St Petersburg is 4°C colder than Riga.

What is the temperature in St Petersburg?

Answer _____ °C [1]

14 John has 35 books.

40% are non-fiction.

How many are non-fiction?

Answer _____ [2]

[Turn over

11772

15 (a) Complete the table.

| Fraction	Decimal	Percentage
$\dfrac{9}{10}$	0.9	_____ %
$\dfrac{3}{100}$	_____	3%

[1]

[1]

(b) Write 65% as a fraction in its lowest terms.

Answer _____ [2]

16 Make an accurate drawing of the triangle.

64°   54°

7 cm

[3]

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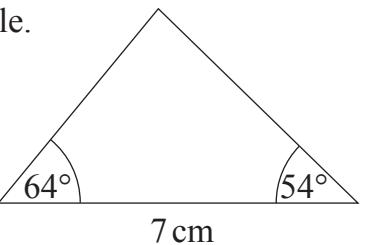
17 **(a)** Simplify $x + 4x + 5x$

Answer _____ [1]

(b) Solve

(i) $3x = 18$

Answer $x =$ _____ [1]

(ii) $9 + x = 13$

Answer $x =$ _____ [1]

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[Turn over

28GMT1117

Quality of written communication will be assessed in this question.

18

PARTY CARDS	
Single card	25p each
Pack of 4	90p
Pack of 6	£1.20
Pack of 20	£3

Evie and Fran each bought 17 cards.

Evie bought 1 single card and 4 packs of 4

Fran bought 5 single cards and 2 packs of 6

(a) Who has paid more for 17 cards and how much more?

Answer _____ paid _____ more [4]

(b) Is there a cheaper way to buy 17 cards? Explain your answer.

Answer _____ because _____

_____ [2]

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28GMT1118

19 Write down the two missing numbers in this sequence:

$$39, \quad 37, \quad 33, \quad 27, \quad \underline{\hspace{1.5cm}} \quad , \quad 9, \quad \underline{\hspace{1.5cm}}$$ [2]

20 (a) Calculate $\dfrac{5}{0.4^2}$

Answer _____ [1]

(b) Calculate $1.3^2 + \sqrt{2.56}$

Answer _____ [1]

[Turn over

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21 Alice recorded the number of each colour of ball in a children's play area.

Colour of ball	Number	Angle
Red	46	
Green	33	
Blue	27	
Yellow	14	

Draw a clearly labelled pie chart to show this information.

[4]

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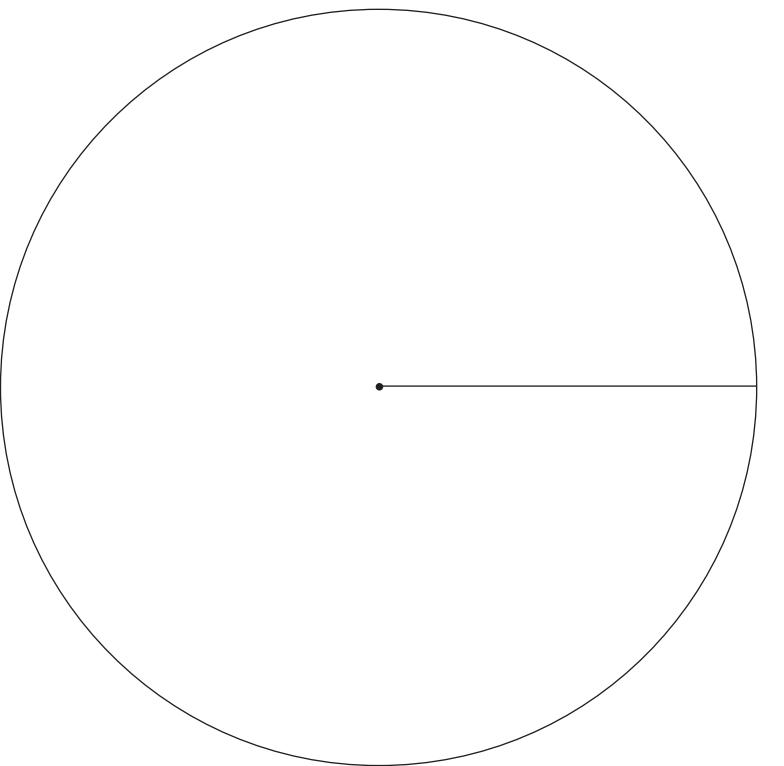
22 The stem and leaf diagram shows the weights of some new-born babies.

$$
\begin{array}{c|l}
2 & 6\ 7\ 8 \\
3 & 1\ 4\ 5\ 5\ 6\ 6\ 7\ 9 \\
4 & 2\ 3\ 7\ 7\ 7\ 9 \\
5 & 0\ 0\ 1
\end{array}
\qquad \text{Key } 2\mid 6 = 2.6\,\text{kg}
$$

Find

(a) how many of these babies weighed over 4.5 kg,

Answer _____ [1]

(b) the range,

Answer _____ kg [1]

(c) the mode,

Answer _____ kg [1]

(d) the median.

Answer _____ kg [2]

[Turn over

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23 A cuboid has length 40 cm and breadth 30 cm.

Its volume is 7 200 cm^3
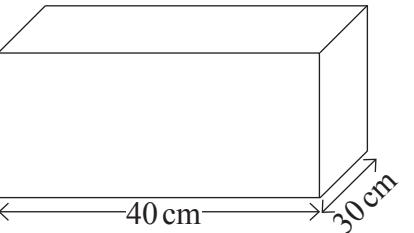
Calculate the height of the cuboid.

Answer _____ [3]

24 Jane earns £600 a week.

She spends $\frac{1}{5}$ of the £600 on rent.

She saves $\frac{1}{4}$ of the £600

What fraction of the £600 has she left?

Answer _____ [4]

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25 Here is a sequence of patterns made with circles
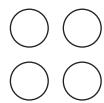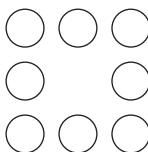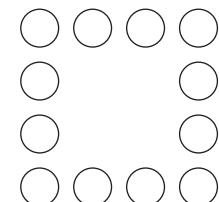
pattern 1   pattern 2   pattern 3

How many circles are needed for **pattern 5**?

Answer _____ because the rule is _____ [2]

26 Write $\frac{3}{8}$,   0.4 and 38% in ascending order of size.

Show your working.

Answer _____ , _____ , _____ [3]

[Turn over

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27 It costs £75 to hire a digger for the first day, plus £45 for each extra day.

Dave paid a total of £345 for hiring this digger.

How many days did Dave hire the digger for?

Answer _____ days [3]

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28GMT1124

28 Work out the size of angle *y* in the diagram below.

diagram not
drawn accurately
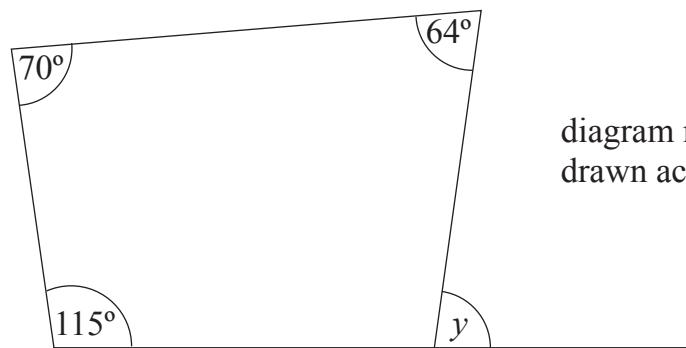
Answer *y* = _____º [3]

_____

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