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General Certificate of Secondary Education
June 2005

**AQA**

ASSESSMENT and
QUALIFICATIONS
ALLIANCE

**MATHEMATICS (SPECIFICATION A)   3301/1F**
**Foundation Tier**
**Paper 1  Non-Calculator**

F

Tuesday 7 June 2005  1.30 pm to 3.00 pm

**In addition to this paper you will require:**
   mathematical instruments.
You must **not** use a calculator.

Time allowed: 1 hour 30 minutes

**Instructions**
- Use blue or black ink or ball-point pen.  Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions in the spaces provided.
- Do all rough work in this booklet.

**Information**
- The maximum mark for this paper is 100.
- Mark allocations are shown in brackets.
- Additional answer paper, graph paper and tracing paper will be issued on request and must be tagged securely to this answer booklet.
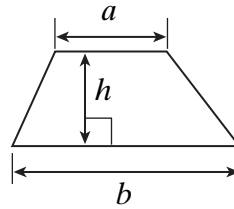- The use of a calculator is **not** permitted.

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

**3301/1F**

**Formula Sheet: Foundation Tier**

You may need to use the following formula:

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

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

1 Here is a list of numbers.

17    28    36    45    57    68    72    86

From this list, write down

(a) two numbers which have a total of 100,

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Answer ...................................................................... *(1 mark)*

(b) two numbers which have a difference of 50,

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Answer ...................................................................... *(1 mark)*

(c) the number which is a multiple of 7,

Answer ...................................................................... *(1 mark)*

(d) the number which is the product of 5 and 9.

Answer ...................................................................... *(1 mark)*

2 Complete the table below.

| Fraction | Decimal | Percentage |
|---|---|---|
| $\frac{1}{2}$ | 0.5 | |
| | 0.7 | 70% |
| $\frac{3}{100}$ | | 3% |

*(3 marks)*

7

**Turn over** ▶

**3** Here is a list of words connected with angles.

Acute          Full-turn          Obtuse

Reflex          Right          Straight

Choose the correct word to describe each of these angles.

(a)
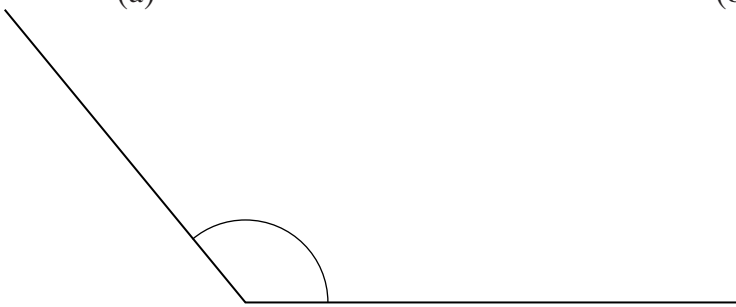
Answer .................................... angle

(b)
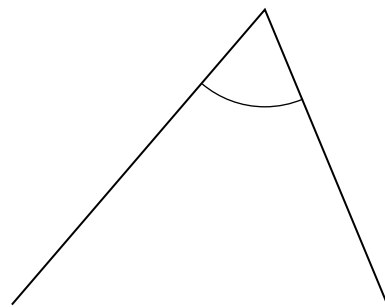
Answer .................................... angle

(c)
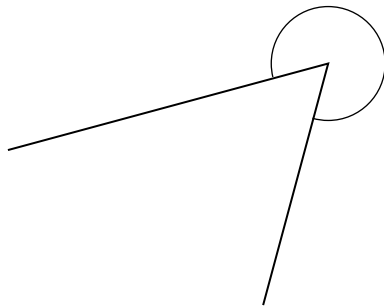
Answer .................................... angle

(d)
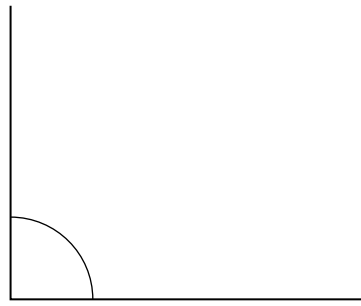
Answer .................................... angle

*(3 marks)*

**4** (a) Write down the name of each of these 3-D shapes.

(i)
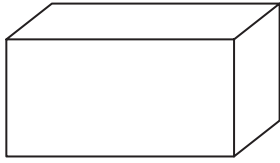
(ii)
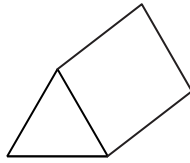
(iii)

Answer (i) ......................................................................................

(ii) ......................................................................................

(iii) ......................................................................................

*(3 marks)*

(b) Here is a net for another 3-D shape.
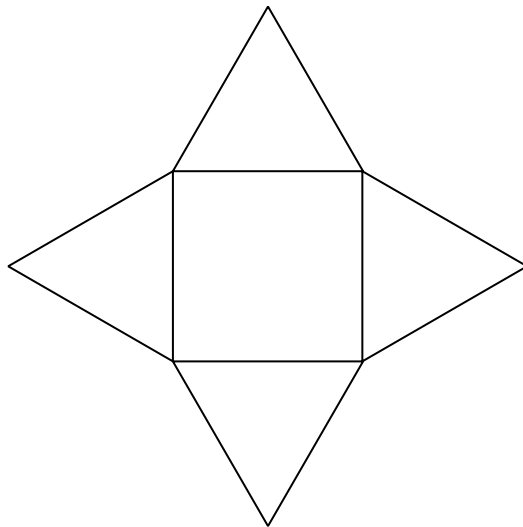
Write down the name of this 3-D shape.

Answer ........................................................................ *(1 mark)*

*7*

**Turn over ▶**

**5**

| **ELECTRICITY BILL** | | |
|---|---|---|
| *Time* | *Cost per unit* | *Units used* |
| Day | 10p | 600 |
| Night | 4p | 200 |

Anne uses this information to work out her electricity bill.
Work out the total amount of her bill.
You **must** show all your working.

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Answer £ ................................................................. *(4 marks)*

**6** Here is a route map of the M62 motorway.
The distances, in miles, between four cities are shown on the map.

Liverpool     Manchester     Leeds     Hull
35     45     60
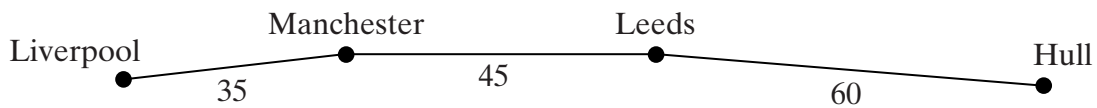
Complete the following table to show the distances between these cities.

| **Liverpool** | | | |
|---|---|---|---|
| 35 | **Manchester** | | |
| 80 | | **Leeds** | |
| | | 60 | **Hull** |

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*(3 marks)*

**7** The cost, in pounds, to hire a conference centre is calculated by using this formula.

**Cost = 4 × number of people attending + 250**

(a) Find the cost of hiring the conference centre when 200 people attend.

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Answer  £ ................................................................ *(2 marks)*

(b) A company pays £650 to hire the conference centre.
How many people attend the conference?

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Answer ....................................................................... *(2 marks)*

**8** (a) Here is a sequence of numbers.

30        25        20        15        10        ………        ………

Write down the next two numbers in the sequence.

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*(2 marks)*

(b) Here is another sequence of numbers.

160        80        ………        20        10        ………        2.5

Write down the two missing numbers in this sequence.

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*(2 marks)*

*15*

**9** The data shows the shoe sizes of 20 students.

~~5~~   7   6   7   10   8   6   7   9   10

10   8   6   6   7   8   7   9   7   6

(a) Complete the frequency table below.

| Shoe size | Tally | Frequency |
|-----------|-------|-----------|
| 5 | I | 1 |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

*(2 marks)*

(b) Complete the bar chart to show this information.

Frequency
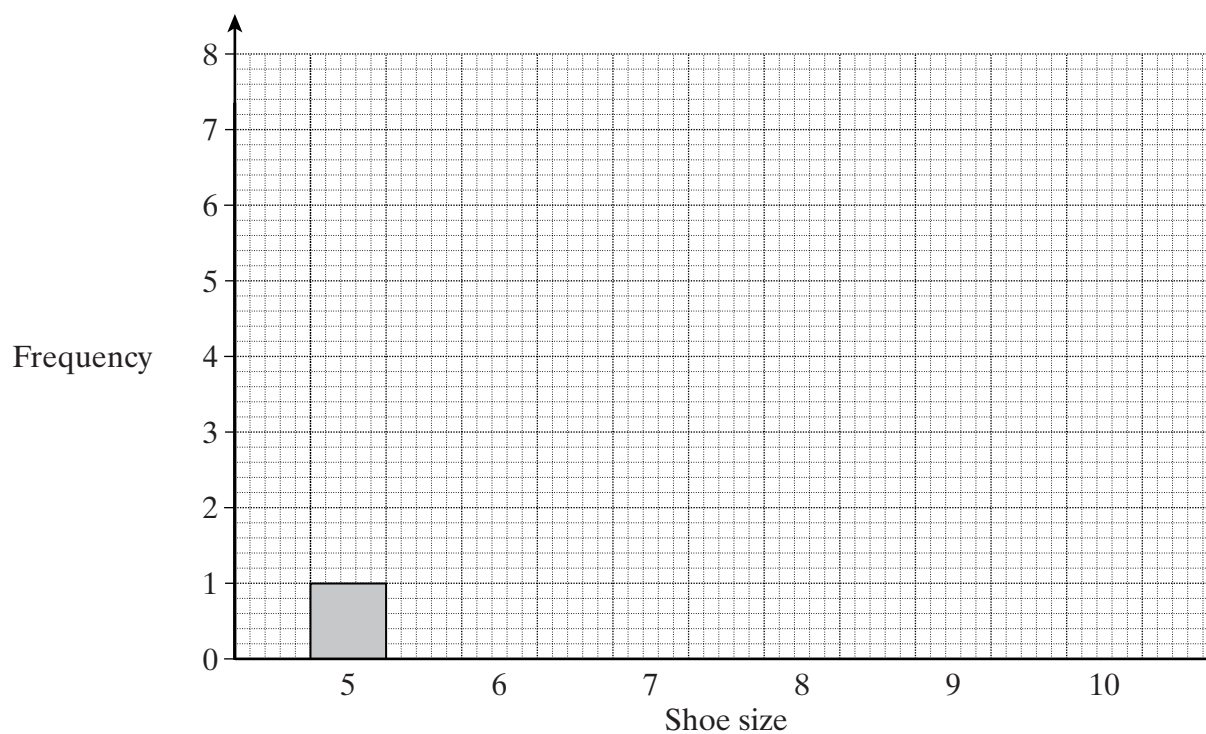
Shoe size

*(2 marks)*

(c) Write down the mode of the shoe sizes.

Answer .......................................................... *(1 mark)*

**10** (a) A box of pencils costs £2.50
Mr Hebson orders 48 boxes for the Mathematics Department.
Find the total cost.

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Answer  £ ..................................................................  *(3 marks)*

(b) Pens are sold in boxes of 12.
Mr Hebson requires 250 pens.
How many boxes does he need to order?

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Answer  .......................................................... boxes  *(3 marks)*

**11** 100 tickets are sold in a raffle.
There is one prize.

(a) Dave buys one ticket.
What is the probability that he wins the prize?

Answer  ........................................................................  *(1 mark)*

(b) Joanna buys five tickets.
What is the probability that she wins the prize?
Give your answer as a fraction in its simplest form.

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Answer  ........................................................................  *(2 marks)*

Turn over ▶

**12** This is a conversion graph for gallons and litres.
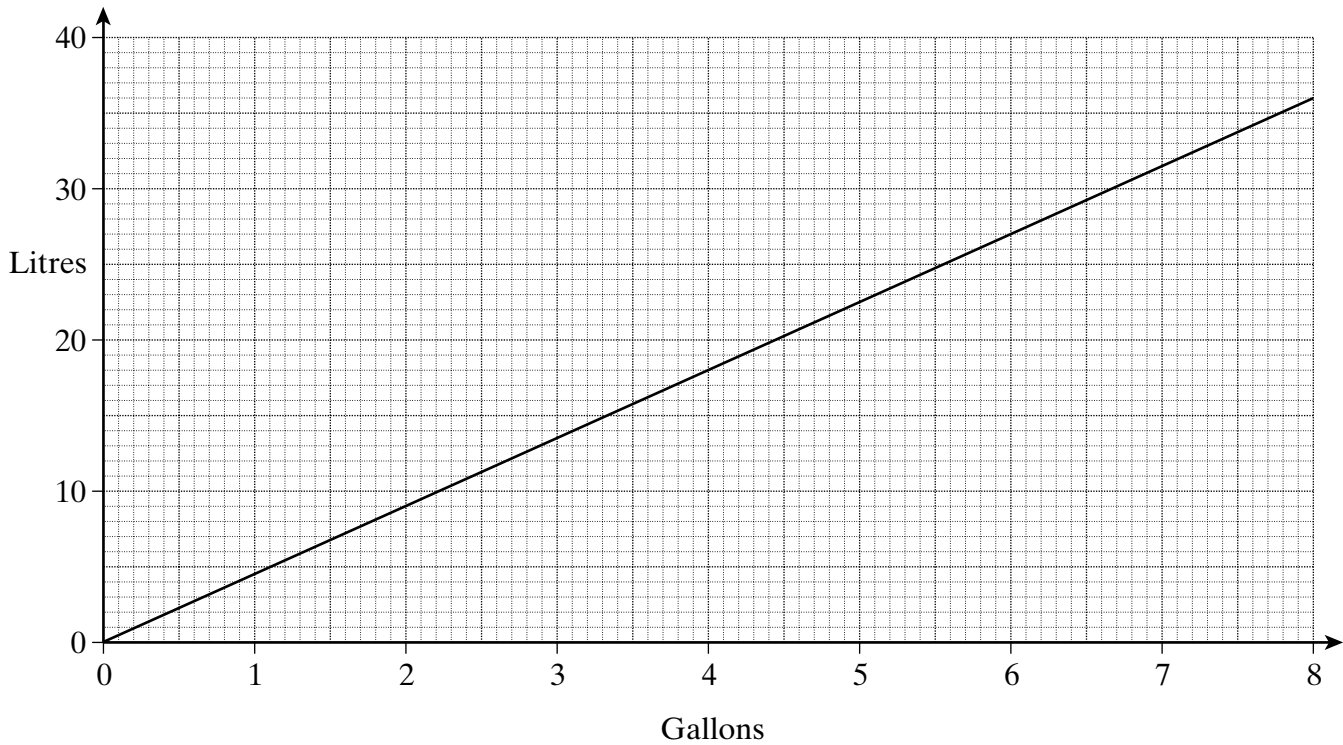


(a) Use the graph to convert

  (i) 4 gallons to litres,

    Answer ............................................................ litres

  (ii) 30 litres to gallons.

    Answer ......................................................... gallons    *(2 marks)*

(b) 50 gallons is approximately 225 litres.
   Explain how you can use the graph to show this.

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                                                                                          *(1 mark)*

**13**   Draw, on the centimetre square grid below, a rectangle that has an area of $12 \text{ cm}^2$.
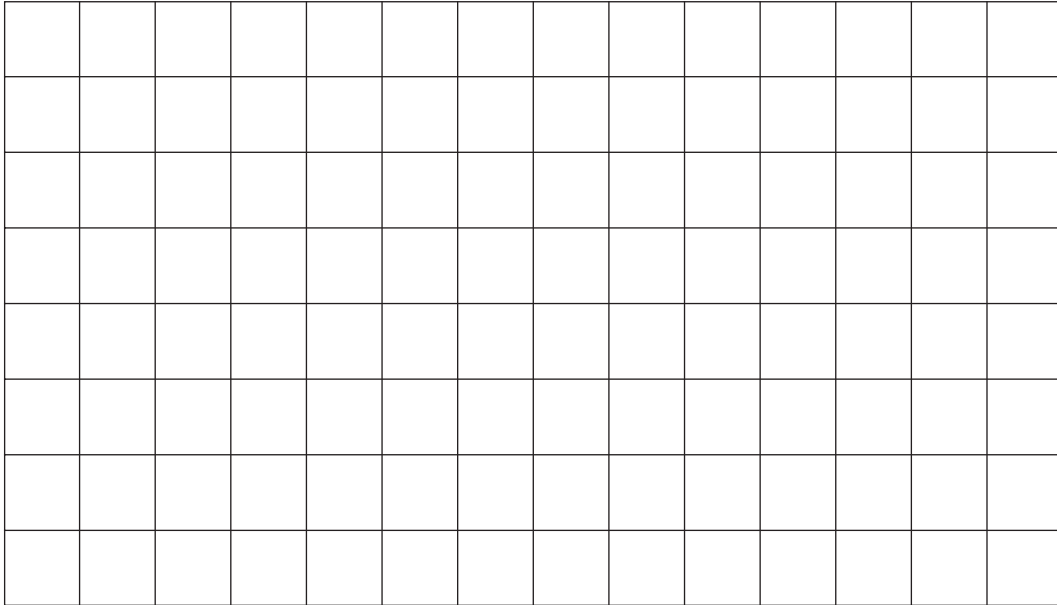
*(2 marks)*

**14**   Here is a number machine.

Input ⟶ $\boxed{\times 4}$ ⟶ $\boxed{+ 3}$ ⟶ **Output**

Use the number machine to complete the table.

| Input | 2 | 5 | 8 | 10 | $n$ |
|---|---|---|---|---|---|
| Output | 11 | | | | |

*(4 marks)*

**TURN  OVER  FOR  THE  NEXT  QUESTION**

$\dfrac{\phantom{0}}{9}$

**Turn over** ▶

**15** A shop sells square carpet tiles in two different sizes.

Small                    Large

30 cm                    2500 cm$^2$                    Not to scale

30 cm
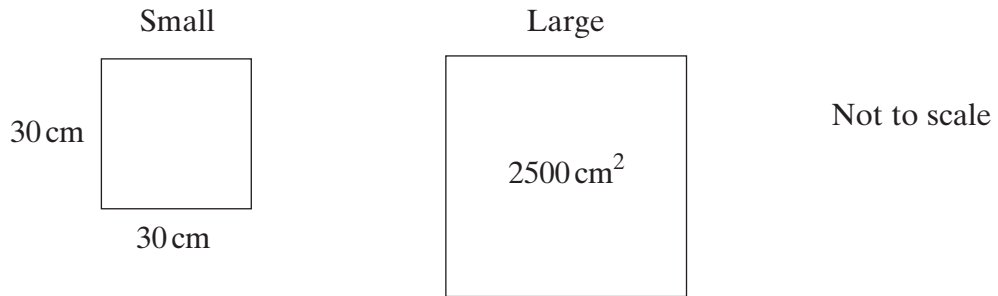
(a) What is the area of a small carpet tile?

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Answer ................................................................ cm$^2$     *(2 marks)*

(b) What is the length of a side of a large carpet tile?

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Answer ................................................................ cm     *(1 mark)*

(c) The floor of a rectangular room is 300 cm long and 180 cm wide.
How many **small** tiles are needed to carpet the floor?

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Answer ......................................................................     *(3 marks)*

**16** This triangle has two equal sides.
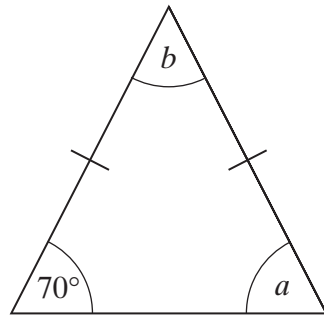
Not drawn accurately

(a) What name is given to this type of triangle?

Answer ...................................................................... *(1 mark)*

(b) Find the values of *a* and *b*.

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Answer *a* = .................. degrees, *b* = .................... degrees *(3 marks)*

**TURN OVER FOR THE NEXT QUESTION**

*10*

**17**  Jim's class and Rosie's class go on a trip to the zoo.
Each pupil pays the same amount.

There are 30 pupils from my class on the trip.  The total cost for my class is £90.

Jim

There are 25 pupils from my class on the trip.

Rosie

What is the total cost for Rosie's class?

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Answer  £  ...............................................................  *(3 marks)*

**18** (a) Use the formula $a = 5b + 2c$ to work out $a$ when $b = 3$ and $c = -4$

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Answer ................................................................ *(2 marks)*

(b) Use the formula $a = 5b + 2c$ to work out $c$ when $a = 16$ and $b = 2$

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Answer ................................................................ *(3 marks)*

**19** Work out

(a) $5.4 - 1.28$

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Answer ................................................................ *(1 mark)*

(b) $3.64 \times 2 + 13.7$

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Answer ................................................................ *(3 marks)*

(c) $0.3 \times 100 + 2.4 \times 10$

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Answer ................................................................ *(2 marks)*

**Turn over** ▶

**20** The table shows the races that 60 primary school pupils entered on their Sports Day. They each entered one race.

| Race entered | Number of pupils |
|---|---|
| Egg and spoon | 18 |
| 3-legged | 20 |
| Sack | 12 |
| Obstacle | 10 |

(a) Draw and label a pie chart to represent the information in the table.

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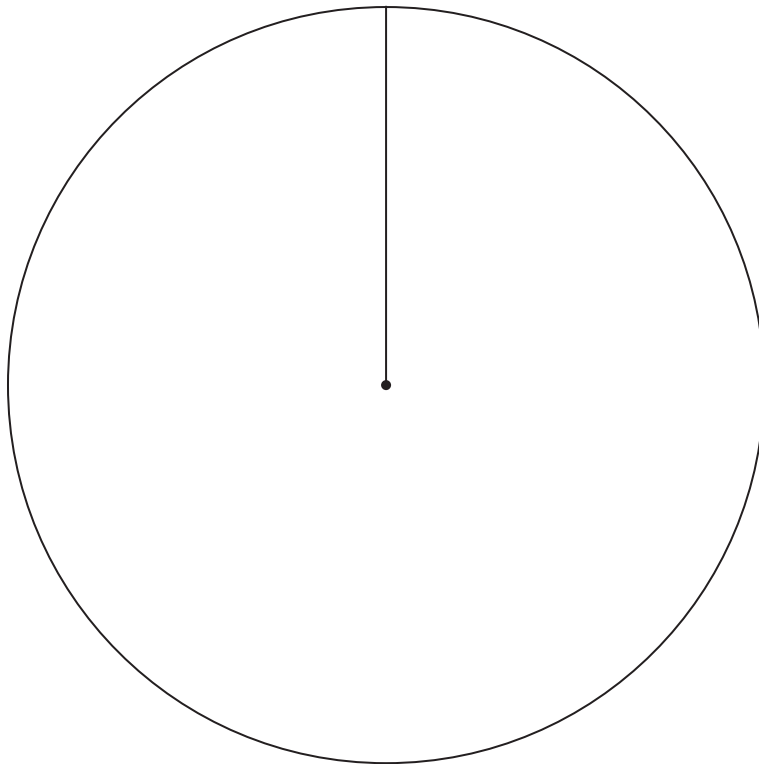
*(4 marks)*

(b) Work out the percentage of pupils who entered the egg and spoon race.

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Answer ................................................................. %     *(2 marks)*

(c) The pupils in the obstacle race took these times in seconds.

23   36   18   29   44   39   36   54   43   41

Draw an ordered stem and leaf diagram to show this information.

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Key:   | 2 | 3   represents 23 seconds

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*(3 marks)*

**TURN OVER FOR THE NEXT QUESTION**

**21** The diagram shows a scale drawing of one side, *AB*, of a triangular field, *ABC*.

N

Scale: 1 cm represents 50 m

*A*

*B*
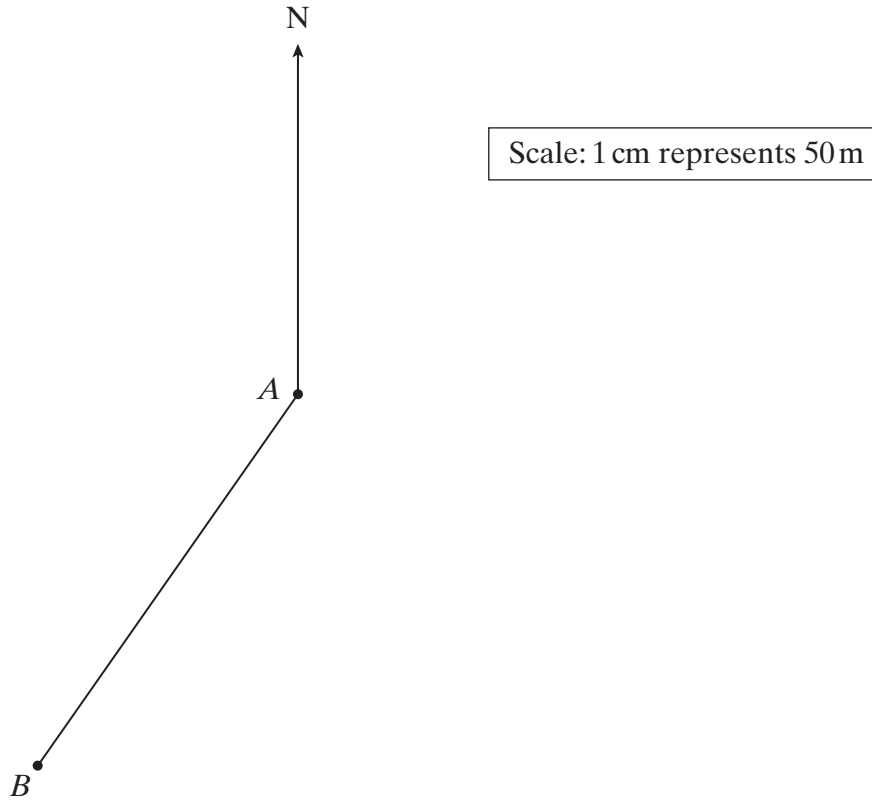
(a) Use the diagram to calculate the actual distance from *A* to *B*.

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Answer .......................................................... metres    *(2 marks)*

(b) Measure and write down the three figure bearing of *B* from *A*.

Answer ................................................................... °    *(1 mark)*

(c) The bearing of *C* from *A* is 130°.
The actual distance from *A* to *C* is 350 metres.
Mark the point *C* on the diagram.

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*(2 marks)*

**22**  Tom works 12 hours each week.

He earns £4 per hour.

Tom saves $\frac{1}{3}$ of his earnings each week.

How many weeks does it take Tom to save £80?
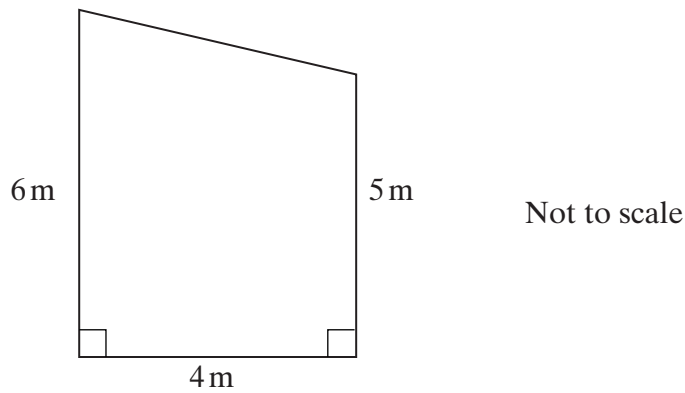
You **must** show all your working.

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Answer .............................................................. weeks    *(4 marks)*

**23**  The diagram shows the side wall of a building.

6 m          5 m          Not to scale

4 m

Calculate the area of the wall.
You **must** show all your working.

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Answer ........................................................................    *(4 marks)*

$\frac{13}{\phantom{1}}$

**Turn over** ▶

**24** $p$ and $q$ are odd numbers.

(a) Is $p + q$ an odd number, an even number or could it be either?
Tick the correct box.

☐              ☐              ☐

odd            even           either

*(1 mark)*

(b) Is $pq$ an odd number, an even number or could it be either?
Tick the correct box.

☐              ☐              ☐

odd            even           either

*(1 mark)*

**END OF QUESTIONS**

APW/6K05/3301/1F