Cambridge IGCSE

CANDIDATE NAME	

CENTRE NUMBER							CANDIDATE NUMBER				

MATHEMATICS 0626/03

Paper 3 (Core) **October/November 2019**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Geometrical instruments
Tracing paper (optional)

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.
CALCULATORS MAY NOT BE USED IN THIS PAPER.
If working is required for any question it must be shown below that question.
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.
The total of the marks for this paper is 84.

[Turn over

1 Work out.

(a) $148 \div 10$

.... [1]

(b) $\sqrt[3]{1000}$

.... [1]

2 In a sale, all prices are reduced by $\frac{1}{3}$.

Tom buys a jacket in the sale.
The original price of the jacket was £69.

Work out how much Tom pays for the jacket.

£ .... [2]

3 (a) $T = \dfrac{3a-4}{2}$

Find the value of T when $a = 6$.

$T =$ .... [2]

(b) $C = 5p - 3q$

Find the value of C when $p = 2$ and $q = -4$.

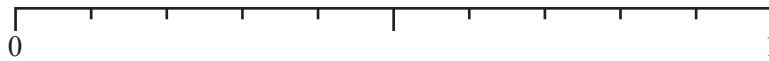$C =$ .... [2]

4   On the probability scale, mark with a cross (×) the probability of taking, at random,

(a) a red apple from a bag containing only green apples,
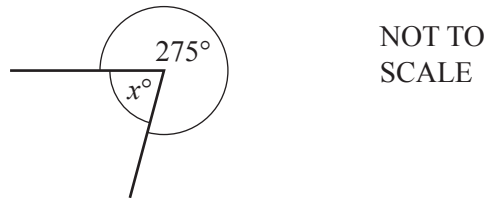
0   1
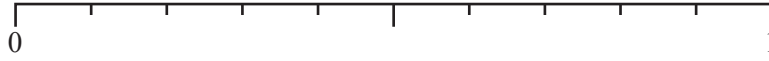
[1]

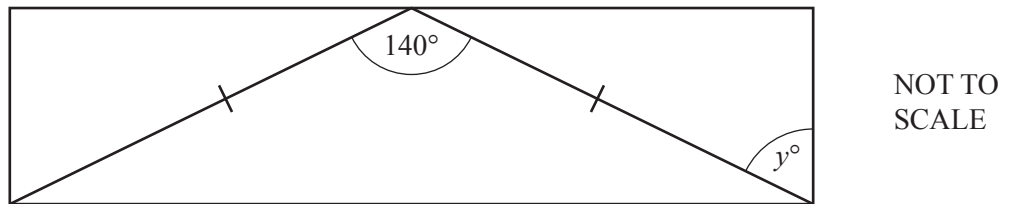**(b)** a toffee from a box of 10 sweets containing 3 toffees.

0   1

[1]

5   **(a)**

275°

x°

NOT TO
SCALE

Find the value of *x*.

x = ... [1]

(b)

140°

y°

NOT TO
SCALE

The diagram shows an isosceles triangle inside a rectangle.

Find the value of *y*.

y = ... [2]

6 **(a)** There were 20 825 people at a football match.

Write this number correct to the nearest thousand.

.... [1]

(b) The ticket sales for this match were £426 912.
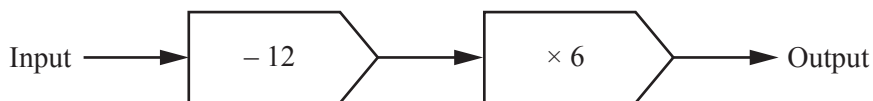Keira wants to round this value correct to 2 significant figures.

She writes

> 42|6 912
> 43|
> About £43 in ticket sales
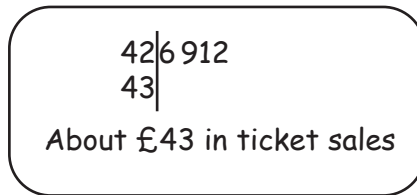
(i) Explain the error Keira has made.

....

.... [1]

(ii) Round £426 912 correct to 2 significant figures.

£ .... [1]

7 Here is a function machine.

Input → − 12 → × 6 → Output

(a) Work out the output when the input is −9.

.... [2]

(b) Work out the input when the output is 30.

.... [2]

8 The timetable shows part of the Saturday service for the T1 and T2 bus routes.

Saturday Service	T1	T2	T1	T2	T1	T2
Wood Road	10 57	–	11 27	–	11 57	–
Church Street	11 17	11 35	11 47	12 05	12 17	12 35
The Grange	–	11 43	–	12 13	–	12 43
Charles Street	11 55	12 03	12 25	12 33	12 55	13 03
Bus Station	12 00	12 08	12 30	12 38	13 00	13 08

(a) Lee takes the 11 43 bus from The Grange to the bus station.

How long does his journey take?

....minutes [1]

(b) Kim has a meeting in Charles Street at 1.15 pm and needs to take the latest bus possible.
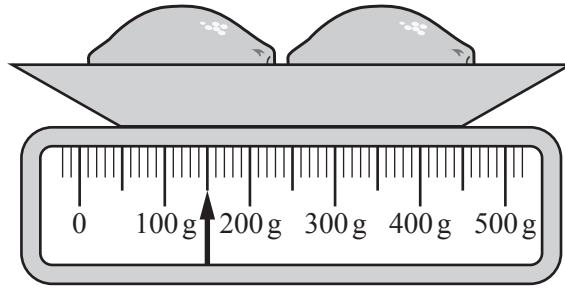Kim's nearest bus stop is Wood Road.
It takes Kim
  • 12 minutes to walk from home to Wood Road bus stop
  • 5 minutes to walk from Charles Street bus stop to the meeting place.

What is the latest time Kim can leave home?

.... [2]

9

The weighing scale shows the mass of 2 lemons.
The mass of 3 lemons and 1 orange is 365 grams.

Work out the mass of the orange.
State any assumption that you make.

Mass of orange ....g

Assumption .... [4]

10 $\mathbf{p} = \begin{pmatrix} 5 \\ 1 \end{pmatrix}$ $\mathbf{q} = \begin{pmatrix} 7 \\ 9 \end{pmatrix}$

(a) Find $\mathbf{p} + \mathbf{q}$.

$\begin{pmatrix} \\ \end{pmatrix}$ [1]

(b) Find $2\mathbf{p} - \mathbf{q}$.

$\begin{pmatrix} \\ \end{pmatrix}$ [2]

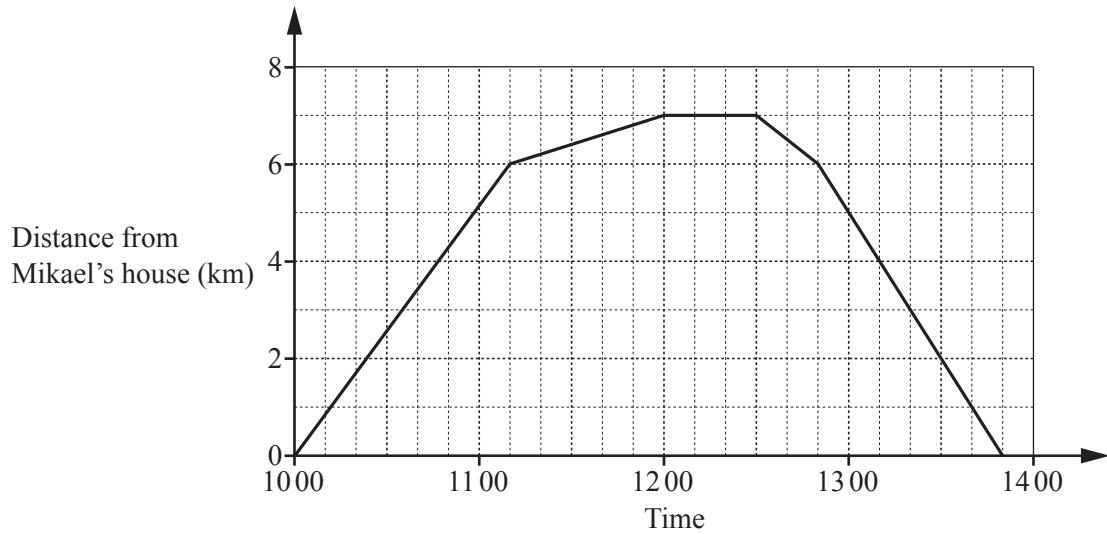**11** Anya and her son have lunch at a café.
Here is Anya's bill.

Food and drinks	Cost (£)
Fish and chips	8.50
Chicken penne	6.50
Coffee	2.25
Cola	1.75
Total	
Service tip	
Amount to pay	

Anya gives a service tip of 15%.

Complete Anya's bill.

[3]

12 Mikael went for a walk.
He walked along a country path, stopped at a café and then walked home.
The travel graph shows his journey.

(a) How far is the café from Mikael's house?

.... km [1]

(b) How many minutes did it take Mikael to walk the last kilometre home?

....minutes [1]

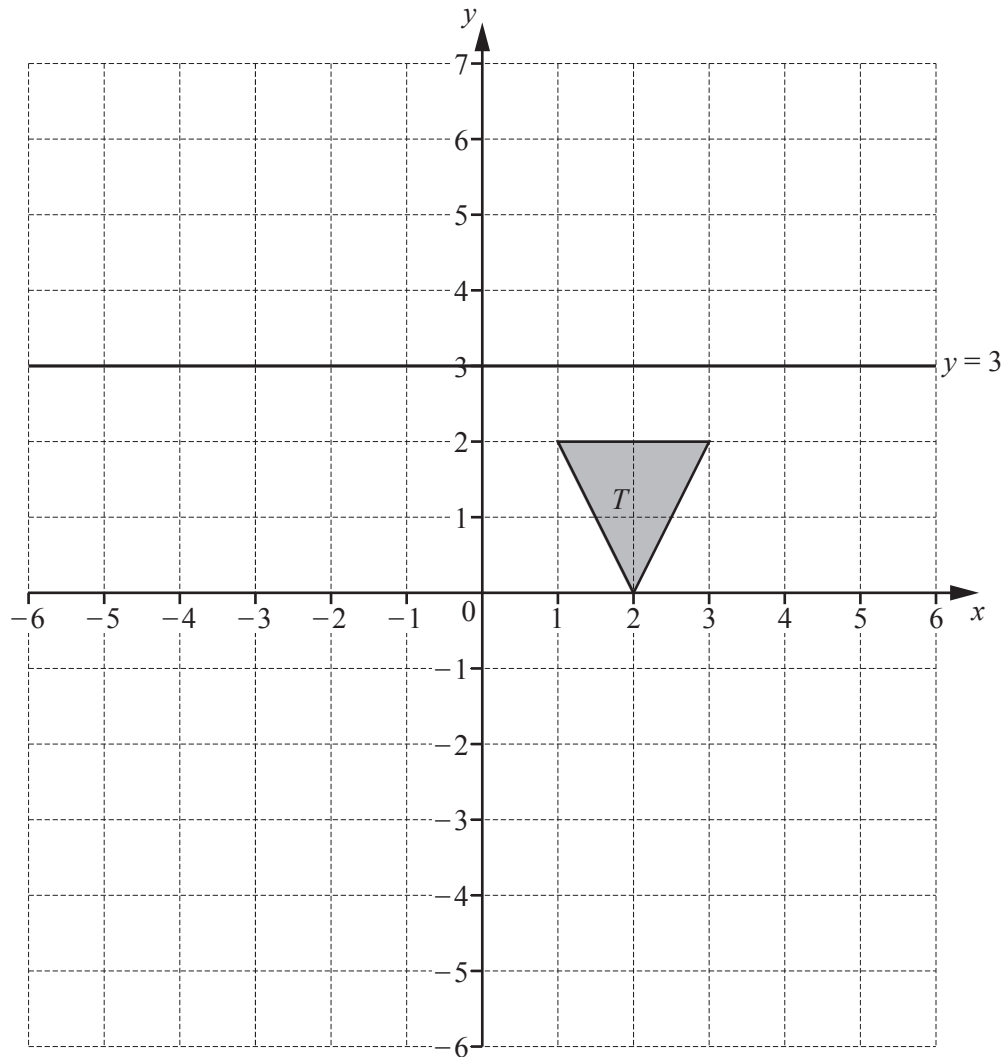**(c)** For part of his journey, Mikael walked up a steep hill.

Is he more likely to have done this just before or just after he stopped at the café?

Before ☐   After ☐

Explain how you can tell this from the graph.

....

.... [1]

13

(a) On the grid, draw the reflection of triangle T in the line $y = 3$. [1]

(b) On the grid, draw the translation of triangle T by the vector $\begin{pmatrix} -6 \\ -4 \end{pmatrix}$. [2]

14 A company makes drinking glasses.
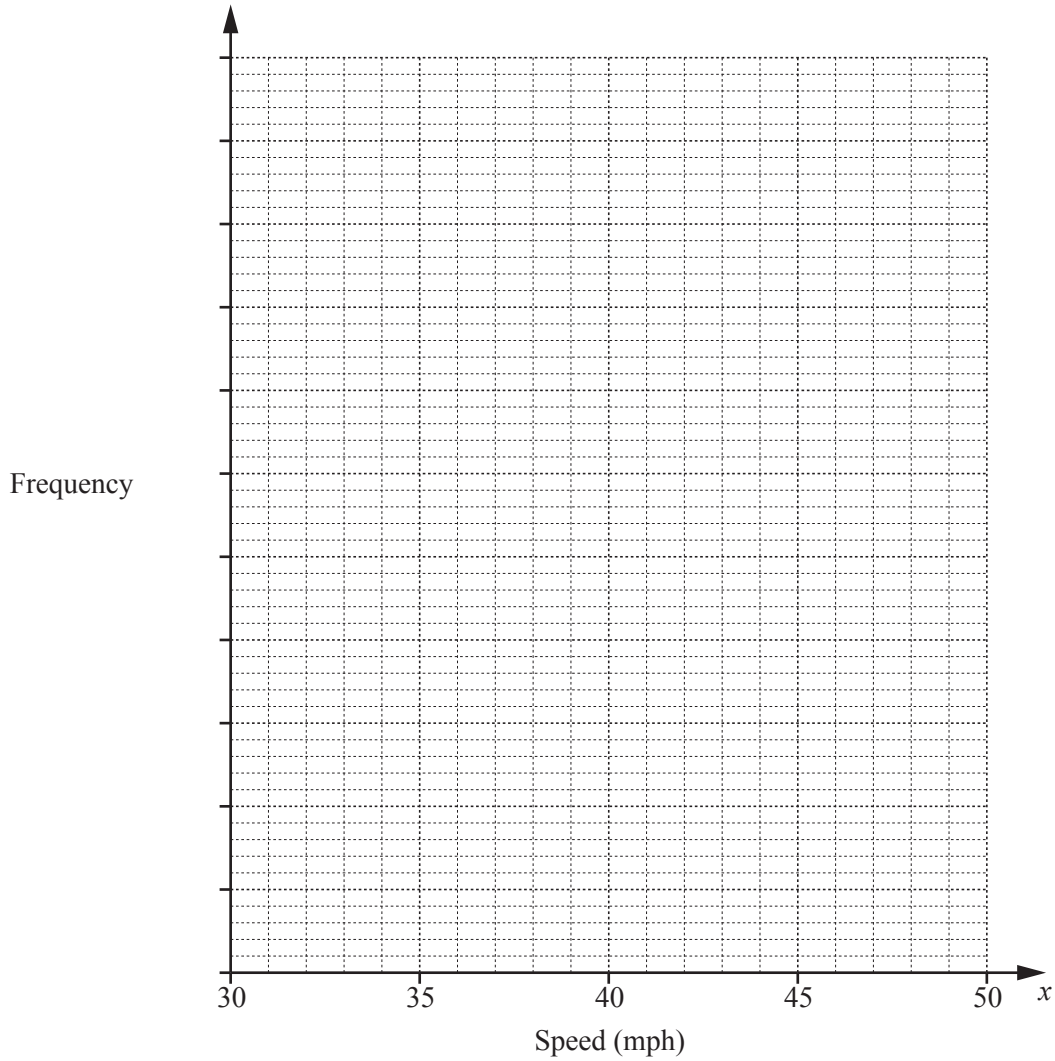The company makes 158 boxes of glasses each week.
Each box contains 12 glasses.

Work out the total number of glasses the company makes in 4 weeks.

.... [3]

15 A traffic camera records the speed, in miles per hour, of 77 vehicles.
    The results are shown in the table.

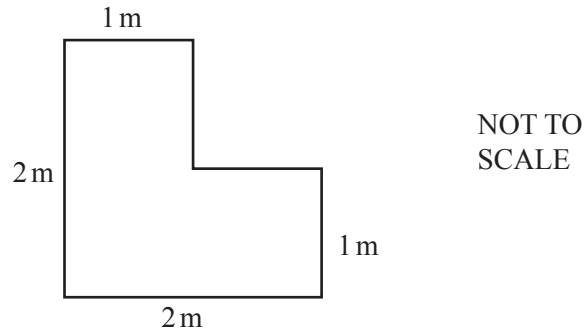| Speed (x mph)	$30 < x \leqslant 35$	$35 < x \leqslant 40$	$40 < x \leqslant 45$	$45 < x \leqslant 50$
Frequency	15	52	8	2

(a) Draw a frequency diagram to show this information.

[3]

(b) The probability that a vehicle was travelling faster than the speed limit was $\frac{10}{77}$.

What was the speed limit?

.... mph [1]

16

1 m

2 m

1 m

2 m

NOT TO
SCALE

The diagram shows Joni's garden pond.
The pond is an L shape made from a rectangle and a square.

Joni wants to make a path all around the edge of her pond using square paving slabs.
These slabs measure 50 cm by 50 cm.
She does not want to have any gaps between the slabs.

She sees this information at her local garden centre.

Paving Slabs

50 cm by 50 cm

£2.60 each

Delivery charges

You spend	Delivery charge
more than £100	Free
£50 to £100	£5
less than £50	£15

She buys her slabs from this garden centre and has them delivered.

Work out the total amount Joni pays.
You must show your working.

£ .... [5]

17 Fran, Sue and Bruce share £9000.
Sue receives 3 times as much as Fran.
Bruce receives 2 times as much as Sue.
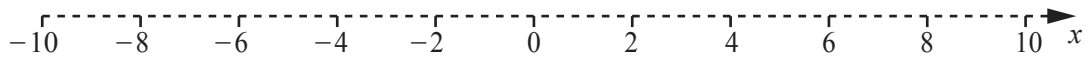
How much do they each receive?

Fran £ ....

Sue £ ....

Bruce £ .... [3]

18 (a) Solve this inequality.

$$3x \leqslant 18$$

.... [1]

(b) Represent your answer to **part (a)** on the number line.

```
    ┌ - - ┬ - - - ┬ - - - ┬ - - - ┬ - - - ┬ - - - ┬ - - - ┬ - - - ┬ - ▶
   −10   −8     −6     −4     −2      0      2      4      6      8     10   x
```

[1]

19 Find the reciprocal of $2\frac{3}{4}$.

.... [2]

20 (a) Write 0.0567 in standard form.

.... [1]

(b) Work out $7.3 \times 10^{14} + 2.4 \times 10^{12}$.
Give your answer in standard form.

.... [2]

21
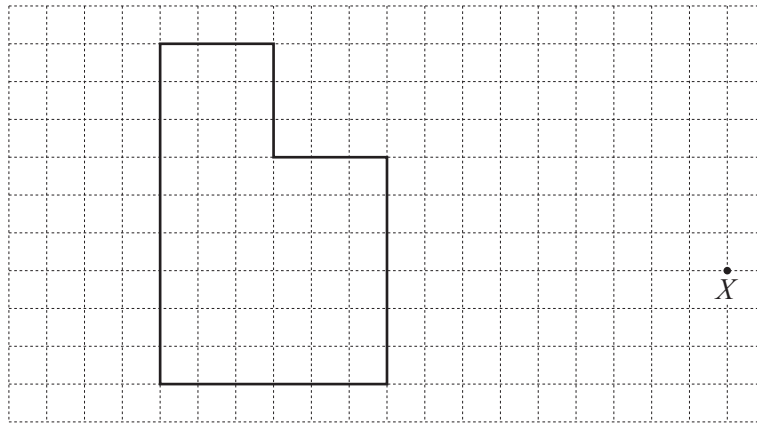
Enlarge this shape by scale factor $\frac{1}{3}$ from the centre of enlargement X. [2]

22 Marcia goes to the supermarket.
She buys
- 1.6 kg of apples at $2k$ pence per kilogram
- 0.8 kg of bananas at $(k+5)$ pence per kilogram.

(a) Write down an expression, in terms of k, for the cost in pence of Marcia's shopping.
Give your answer in its simplest form.

....pence [2]

(b) The total cost of Marcia's shopping is £2.44.

Find the value of k.

$k =$ .... [2]

23 Work out.

$$5\frac{7}{9} - \frac{11}{12} \times \frac{2}{3}$$

Give your answer as a mixed number.

.... [3]

24 Here is a description of triangle *DEF*.

- Side *DE* = 8 cm
- Angle *EDF* = 42°
- Side *EF* = 6 cm

Two different triangles can be constructed using this description.

Construct accurately these two triangles.

[4]

25 Find five positive integers which satisfy all four of the following conditions.

- mode = 5
- median = 5
- mean = 6
- range = 7

.... , ... , ... , ... , ... [3]

26 Change $\frac{3}{8}$ into a decimal.

.... [2]

27 Simplify.

(a) $x(x-3)-x(x+3)$

.... [2]

(b) $\left(x^5\right)^2$

.... [1]

28 Cylinder P has radius 5 cm and height 4 cm.

Calculate the volume of cylinder P.
Give your answer as a multiple of π.

....cm^3 [2]

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