Centre Number	Candidate Number	Candidate Name

NAMIBIA SENIOR SECONDARY CERTIFICATE

MATHEMATICS ORDINARY LEVEL

4324/3

PAPER 3 (Core)

1 hour 45 minutes

Marks 90

2019

Additional Material: Geometrical instruments
Non-programmable calculator
Tracing paper (optional)

INSTRUCTIONS AND INFORMATION TO CANDIDATES

- Candidates answer on the Question Paper in the spaces provided.
- Write your Centre Number, Candidate Number and Name in the spaces at the top of this page.
- Write in dark blue or black pen.
- You may use a soft pencil for any diagrams or graphs.
- Do not use correction fluid.
- Do not write in the margin *For Examiner's Use*.

- Answer **all** questions.

- If working is needed for any question it must be shown below, or where working is indicated.
- The number of marks is given in brackets [ ] at the end of each question or part question.
- Non-programmable calculators may be used.
- 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 for angle sizes to **one** decimal place.
- For π, either use your calculator value, or use 3.142.

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Marker	
Checker	

This document consists of **14** printed pages and **2** blank pages.

Republic of Namibia

MINISTRY OF EDUCATION, ARTS AND CULTURE

1 **(a)** Write down the number two thousand and thirty - one.

Answer **(a)** ..... [1]

(b) Write 5 732 to the nearest

(i) 10,

Answer **(b) (i)** ..... [1]

(ii) 1 000.

Answer **(b) (ii)** ..... [1]

(c) List **all** the factors of 18.

Answer **(c)** ..... [2]

(d) Find the value of $\sqrt{144}$.

Answer **(d)** ..... [1]

(e) Calculate

N$ 720 − N$ 35.70 × 8.

Answer **(e)** ..... [1]

(f) Write down the **smallest** integer in the range $-2 < n \leq 1$.

Answer **(f)** ..... [1]

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2 **(a)** Simplify the ratio 129 : 301.

Answer **(a)** ..... [1]

(b) Write $\frac{138}{200}$ as a percentage.

Answer **(b)** ..... % [2]

(c) Give 25% as a common fraction in its simplest form.

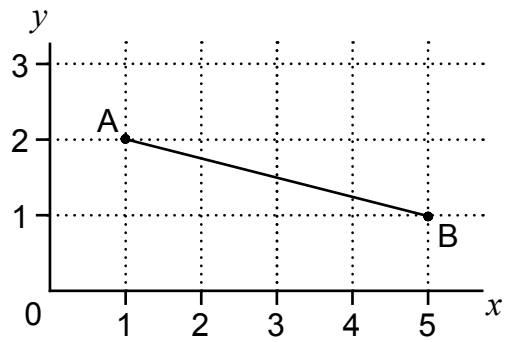
Answer **(c)** ..... [2]

(d) From the list below choose the fractions which are **not** equivalent to $\frac{1}{5}$.

$\frac{20}{100}$, $\frac{18}{25}$, $\frac{25}{125}$, $\frac{12}{60}$, $\frac{5}{30}$.

Answer **(d)**..... and ..... [2]

3



The column vector $\overrightarrow{AB} = \begin{pmatrix} 4 \\ -1 \end{pmatrix}$.

Write down the column vector of

(a) $\overrightarrow{BA}$,

Answer **(a)** $\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [1]

(b) $\overrightarrow{OA}$,

Answer **(b)** $\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [1]

(c) $3\overrightarrow{AB}$.

Answer **(c)** $\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [1]

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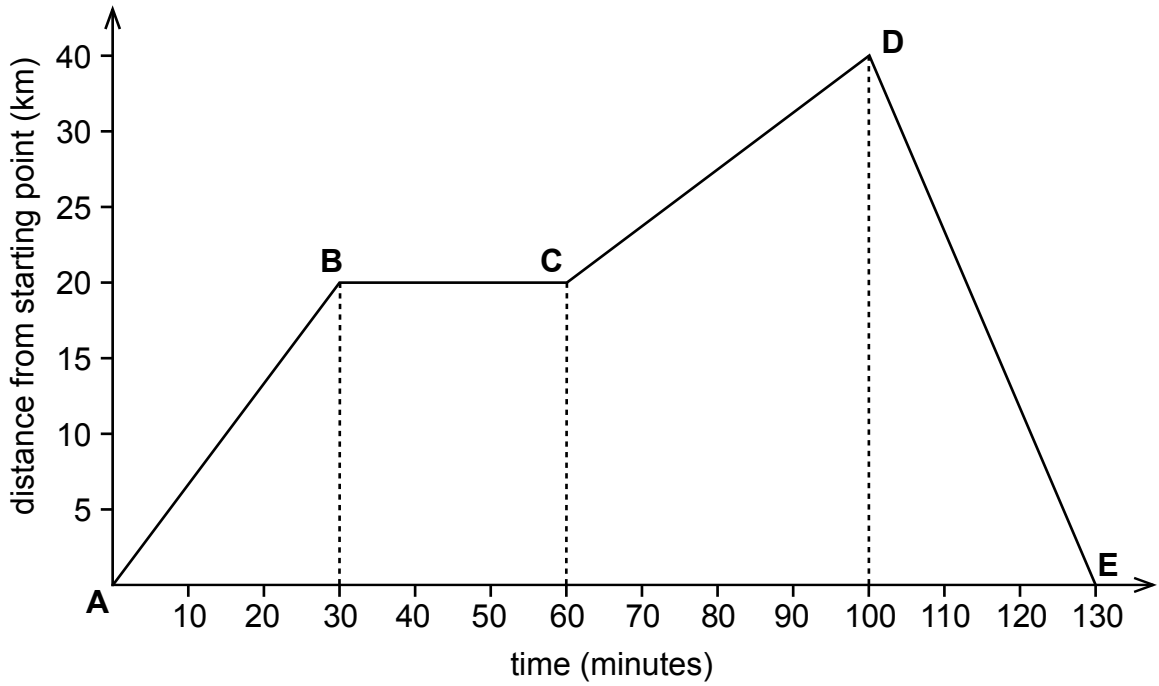
4 The graph shows the distance-time graph for a family on a game drive.



(a) How long was the game drive?

Answer **(a)** ..... [1]

(b) What happened between point **B** and point **C**?

Answer **(b)** ..... [1]

(c) Calculate the speed of the car between point **C** and point **D** in km/min.
Give your answer as a decimal.

Answer **(c)** .....km/min [2]

(d) What was the total distance of their journey?

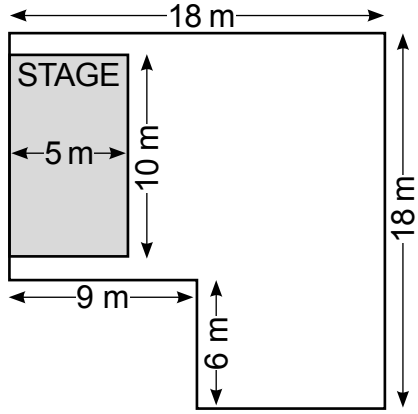
Answer **(d)** ..... [1]

(e) The car used 35 ℓ of petrol. It cost them N$ 455.00 to fill up the tank.
What was the price of the petrol per litre?

Answer **(e)** N$ ..... [2]

5 School A decides to tile the floor of their school hall using black and grey tiles.

The hall is L-shaped, with a rectangular stage against one wall. The width of the stage is 5 m and the length of the stage is 10 m. The stage is not going to be tiled. The diagram of the school hall is shown below.



NOT TO SCALE

(a) Calculate the area of the stage.

Answer **(a)** ..... m^2 [1]

(b) Show that the area of the floor, excluding the stage is 220 m^2.

Answer **(b)**

[3]

(c) Convert 220 m^2 to cm^2.

Answer **(c)** ..... cm^2 [1]

(d) The ratio of black tiles to grey tiles is 4 : 1. For the floor, 220 tiles are needed in total.

Calculate the number of black tiles.

Answer **(d)** .....black tiles [2]

(e) The black tiles come in boxes of 12. Calculate the number of **full (complete)** boxes of black tiles that must be bought.

Answer **(e)** .....boxes [2]

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6 **(a)** Write 7.0572 correct to three significant figures.

Answer **(a)** ..... [1]

(b) The population of an island is 32.5 million.

Write 32.5 million in standard form.

Answer **(b)** ..... [2]

(c) Convert US$1 532 to Namibian dollars.

The exchange rate is 1US$ = N$17.25.

Answer **(c)** N$..... [2]

(d) The weight of an ox is 480 kg correct to the nearest ten kilograms.

Complete the statement below.

Answer **(d)** .....kg ≤ weight < .....kg [2]

7 **(a)** Write down algebraic expressions for the following, using "x" for the unknown number.

(i) the cube root of a number,

Answer **(a) (i)** ..... [1]

(ii) a number to the power of 5.

Answer **(a) (ii)** ..... [1]

(b) Solve the equation

$3 - 2x = 10x$.

Answer **(b)** x = ... [2]

(c) Factorise completely

$12\,mn^2 - 4\,mn$.

Answer **(c)** ..... [2]

(d) Solve the following simultaneous equations.

$5x - 3y = 21$,

$2x + y = 4$.

Answer **(d)** x =.....y =..... [3]

For Examiner's Use

8 Renate intends to sell apples at the market. She buys 20 apples for N$ 70.

(a) Calculate the cost price of one apple.

Answer **(a)** N$..... [2]

(b) Renate buys more apples and decides to sell them in packets of six at N$ 30 per packet.

Calculate the profit she makes on one apple.

Answer **(b)** N$..... [2]

(c) How much would it cost Renate to buy 220 apples?

Answer **(c)** N$..... [1]

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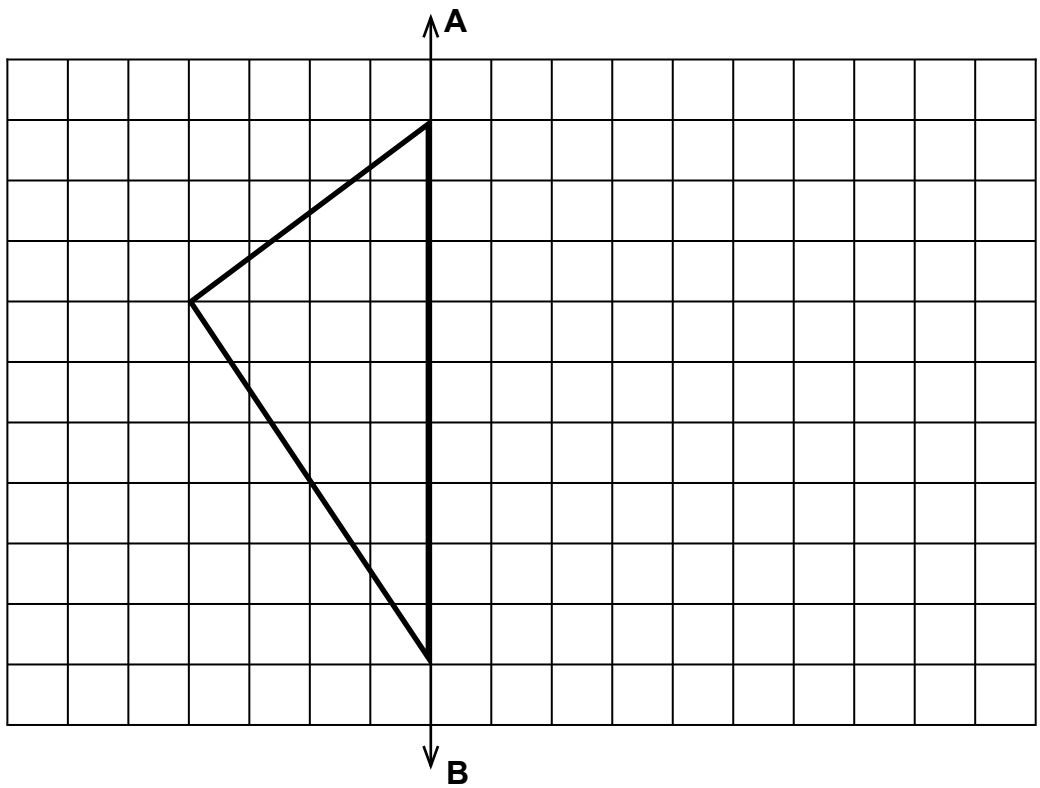
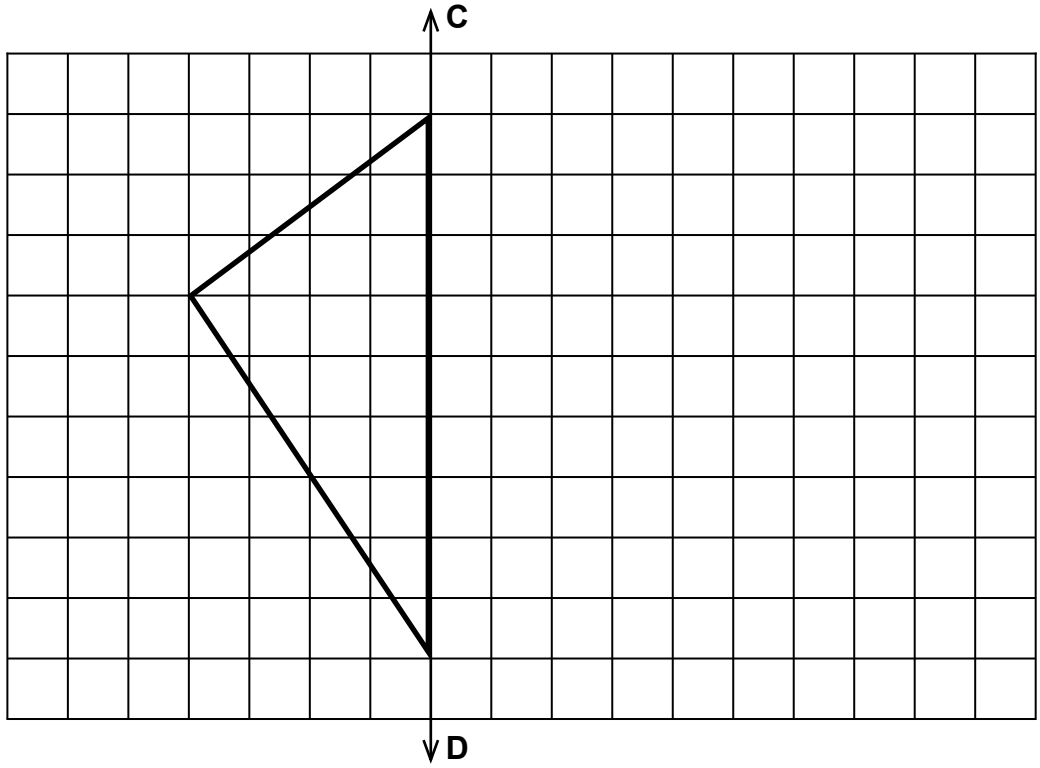
9 **(a)** Reflect the triangle in the line **AB**.



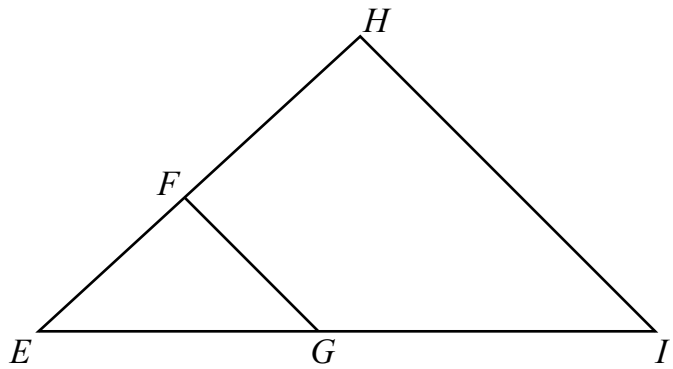
[1]

(b) Rotate the triangle through 180º about the midpoint of **CD**.



[2]

(c)



(i) Identify the kind of transformation that maps triangle EFG onto triangle EHI.

Answer **(c) (i)** ..... [1]

(ii) Use one of the following words,

congruent, **similar**, **identical** to complete the statement.

"Triangle EFG is ..... to triangle EHI ".

[1]

10

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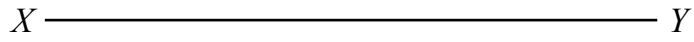


(a) Measure the length of XY in mm.

Answer **(a)** ..... mm [1]

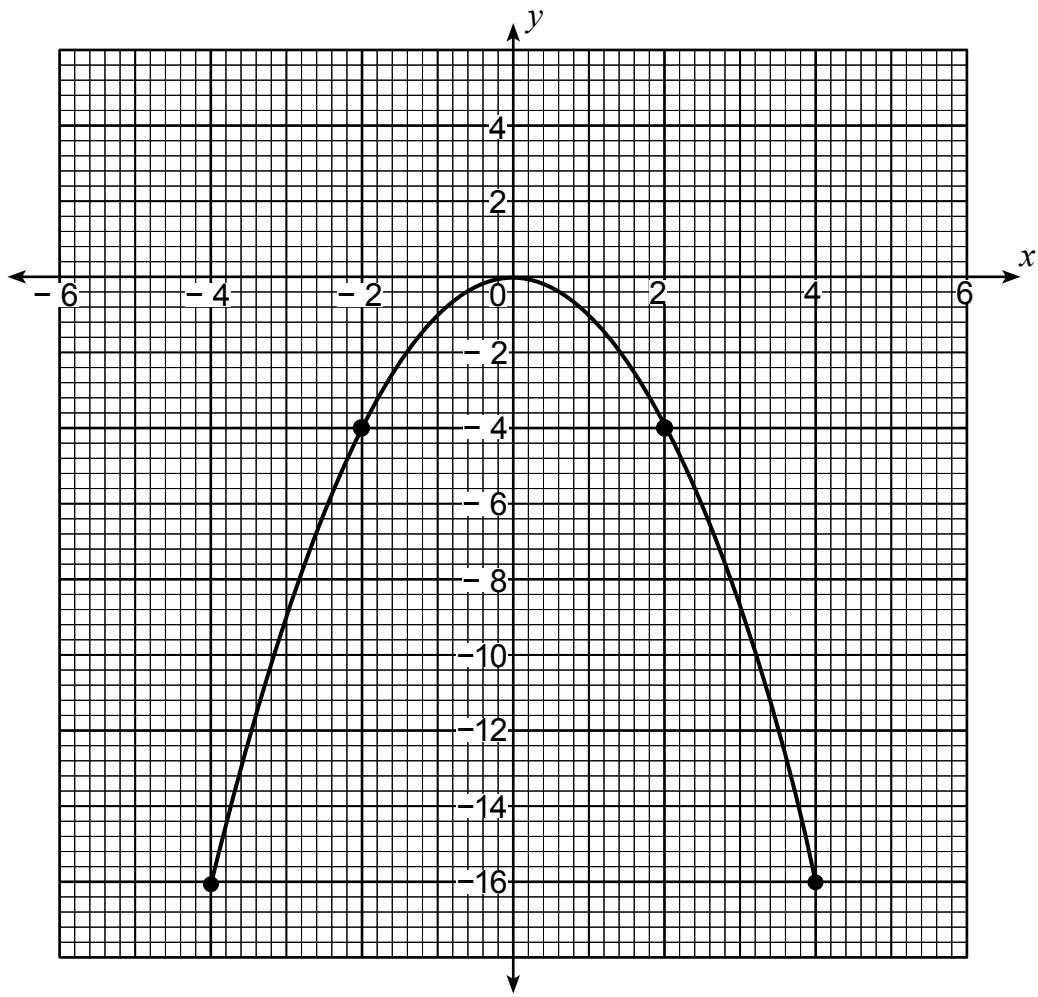
(b) Mark the midpoint of line XY, label it **M**. [1]

(c) Draw a circle using XY as the diameter of the circle. [1]

(d) Calculate the circumference of the circle.

Answer **(d)** ..... mm [2]

11 The graph shows the curve of $y = -x^2$.



(a) Use the graph to find the value of y when $x = -2$.

Answer **(a)** y = ... [1]

(b) A straight line has the equation $y = 2x - 8$.

(i) Complete the table of values for $y = 2x - 8$.

x	-4	0	
y		-8	0

[2]

(ii) On the grid above draw the graph of $y = 2x - 8$ for $-4 \leq x \leq 4$. [2]

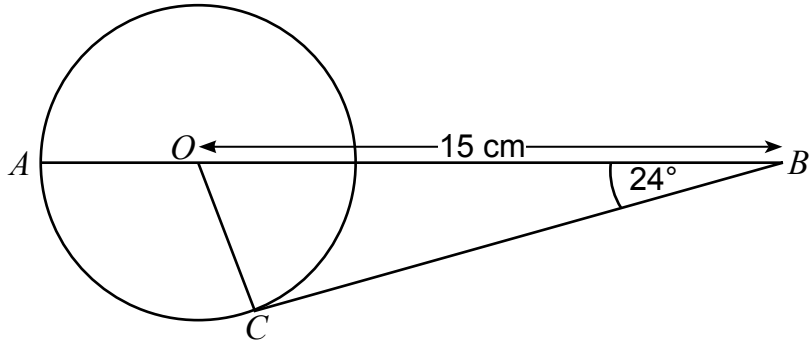
(c) Write down the coordinates of the points at which the two graphs intersect.

Answer **(c)** (..... , ...) and (..... , ...) [2]

12 In the diagram CB is a tangent to the circle, centre O.

Angle OBC = 24° and OB = 15 cm.

NOT TO SCALE



(a) Give a reason why angle OCB is 90°.

Answer **(a)**..... [1]

(b) Calculate the length of the radius, OC.

Answer **(b)** ..... [2]

(c) Calculate

(i) angle BOC,

Answer **(c) (i)** ..... ° [1]

(ii) angle AOC.

Answer **(c) (ii)** ..... ° [1]

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13 **(a)** For 15 school days, Hannes records the minutes he spends each day doing his Mathematics homework. His results are shown below.

20	15	25	30	25
30	35	50	25	35
25	45	30	35	40

Find

(i) the mode,

Answer **(a) (i)** ..... [1]

(ii) the median,

Answer **(a) (ii)** ..... [2]

(iii) the mean

Answer **(a) (iii)** ..... [3]

(b) Each of the letters of the word MATHEMATICA is written on a separate card. If a card is chosen at random, find the probability that the letter on the card is

(i) a C,

Answer **(b) (i)** ..... [1]

(ii) an A,

Answer **(b) (ii)** ..... [1]

(iii) a L.

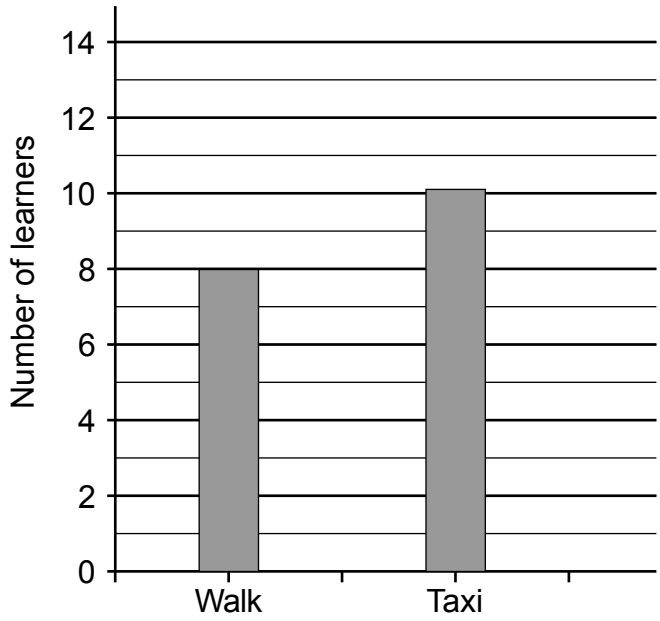
Answer **(b) (iii)** ..... [1]

(c) The 36 learners in a Mathematics class were asked how they travelled to school. Their responses are recorded in the table below.

Transport	Number of learners
walk	8
bicycle	3
taxi	11
own car	14

(i) The incomplete bar chart below shows this information.

Complete the bar chart.



[2]

(ii) If one learner from the class is chosen at random, what is the probability that he does **not** walk to school?

Answer **(c) (ii)**..... [2]

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