Centre Number	Candidate Number	Candidate Name

NAMIBIA SENIOR SECONDARY CERTIFICATE

MATHEMATICS ORDINARY LEVEL

4324/3

PAPER 3 (Core)

1 hour 45 minutes

Marks 90

2017

Additional Materials: 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 **12** printed pages.

Republic of Namibia

MINISTRY OF EDUCATION, ARTS AND CULTURE

For Examiner's Use

1 **(a)** Find the value of $\sqrt{121}$.

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

(b) Write down the cube of 2.

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

(c) Find the lowest common multiple of 9 and 12.

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

(d) Write down all the factors of 57.

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

(e) In a sale, the cost of a jacket is reduced from N$650 to N$520.

Calculate the percentage decrease in the cost of the jacket.

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

(f) The scale of a map is 1 : 1 000 000.

On the map, two towns are 19 cm apart.

Calculate the actual distance, in kilometres, between the towns.

Answer **(f)** ..... km [2]

2 $$\frac{19.83 \times 7.9}{5.72 + 2.25}$$

(a) In the spaces provided, write each number in the calculation above, rounded to the nearest whole number.

$$\frac{\text{..... } \times \text{ .....}}{\text{..... } + \text{ .....}}$$ [1]

(b) Use your answer to **2 (a)** to work out an estimate for the answer.

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

(c) Use your calculator to find the actual answer to the original calculation.

Write down your full calculator display.

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

(d) Give your answer to **2 (c)** correct to 1 decimal place.

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

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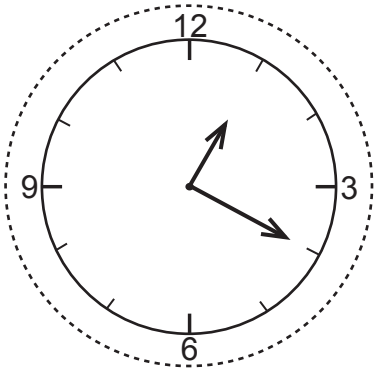
3 Mary walks from home to the shopping centre. When she arrives at the shopping centre, her watch shows this time.



(a) Write down the time indicated on her watch.

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

(b) Mary took $1\frac{1}{2}$ hours to walk to the shopping centre.

At what time did she leave home?

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

(c) The distance between the shopping centre and Mary's house is 15 km.
Calculate her average speed.

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

[Turn over

For Examiner's Use

4 **(a)** Factorise completely.

$3b + 12$

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

(b) Given $\frac{28 - m}{n} = p$.

(i) Calculate the value of p when $m = -5$ and $n = 3$.

Answer **(b) (i)** p = ... [2]

(ii) Make n the subject of the formula in $\frac{28 - m}{n} = p$.

Answer **(b) (ii)** n = ... [2]

(c) Solve the following equations.

(i) $20 - 3(5 - y) = 8$

Answer **(c) (i)** y = ... [3]

(ii) $(x + 7)(2x - 1) = 0$

Answer **(c) (ii)** x =..... or x =..... [2]

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5 **(a)** Tonia mixes yellow and red paint to make orange paint.
The ratio, yellow paint : red paint is 5 : 3.

(i) She makes 20 litres of orange paint.

How many litres of red paint did she use?

Answer **(a) (i)** ..... litres [2]

(ii) Paint is sold in tins containing 5 litres.

How many tins of red paint did Tonia buy?

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

(b) A five litre tin of yellow paint costs N$312.50. In a sale, the price is reduced by 10%.

(i) Calculate the sale price.

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

(ii) Tonia buys 2 five litre of tins of yellow paint.
How much did she pay for the yellow paint?

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

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6 A certain school has a total of 600 learners. 450 of the learners are girls.

(a) Express the number of girls as a fraction of the total number of learners in its simplest form.

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

(b) Write the number of boys as a percentage of the total learners.

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

(c) There are 25 teachers at this school.

Write down the ratio of teachers to learners, in its simplest form.

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

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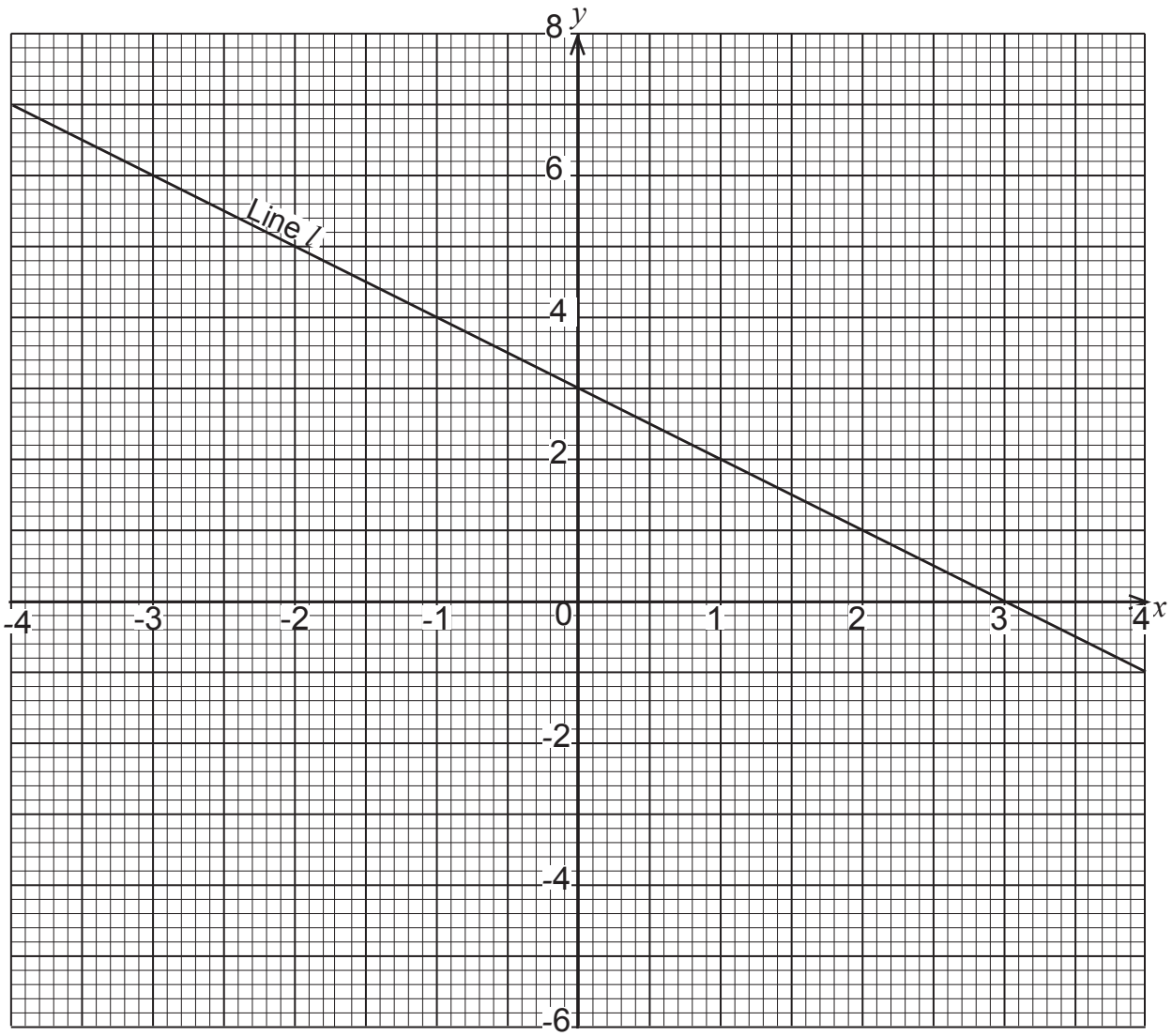
7 The graph shows a drawn line l.



(a) Find the gradient of line l .

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

(b) **(i)** Complete the table below for $y = 2x - 4$.

x	–1	0		4
y	–6		0	4

[2]

(ii) On the grid above, draw the graph of $y = 2x - 4$ for $-1 \leq x \leq 4$. [2]

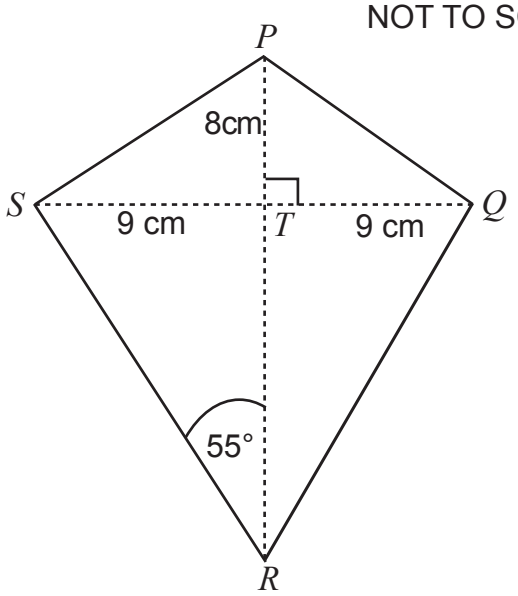
(c) The equation of the line l is $x + y = 3$.

Use your graphs to solve $y = 2x - 4$ and $x + y = 3$ simultaneously.

Answer **(c)** x = ... y = ... [2]

8 The diagram shows a kite $PQRS$ such that $SP = PQ$ and $SR = RQ$.
The diagonals intersect at right angles at the point T such that $PT = 8$ cm and $ST = TQ = 9$ cm.

NOT TO SCALE



(a) (i) Complete the following statement.

Triangle PSR is congruent to triangle ..... [1]

(ii) Write down the size of angle PRQ.

Answer **(a) (ii)** ..... ° [1]

(b) (i) Calculate the length of PS.

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

(ii) Use trigonometry to calculate the length of SR.

Answer **(b) (ii)** ..... cm [3]

(iii) Calculate the perimeter of the kite.

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

9 A supermarket owner employs 45 workers. Their weekly wages are shown in the table.

Weekly wages (N$)	100	120	140	170
Number of workers	16	17	7	5

(a) Calculate the total amount paid in wages in a week.

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

(b) After a good week of sales in the supermarket, the owner increased the wages of all his workers by 12%.

(i) Work out the new weekly wage of each of the 16 lowest paid workers.

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

(ii) Work out how much more he now pays in wages per week for the 5 highest paid workers.

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

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10 **(a)** Arrange the following numbers in descending order, largest first.

3.121, 3.211, 3.12.

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

(b) Given the two statements: $\cos 60° > \frac{3}{4}$ and $\sqrt{100} \neq 10^2$,

choose the correct one.

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

(c) Desmond was sponsored N$5 per kilometre in a fun run.

If he ran 17 km, calculate the total amount of money he received.

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

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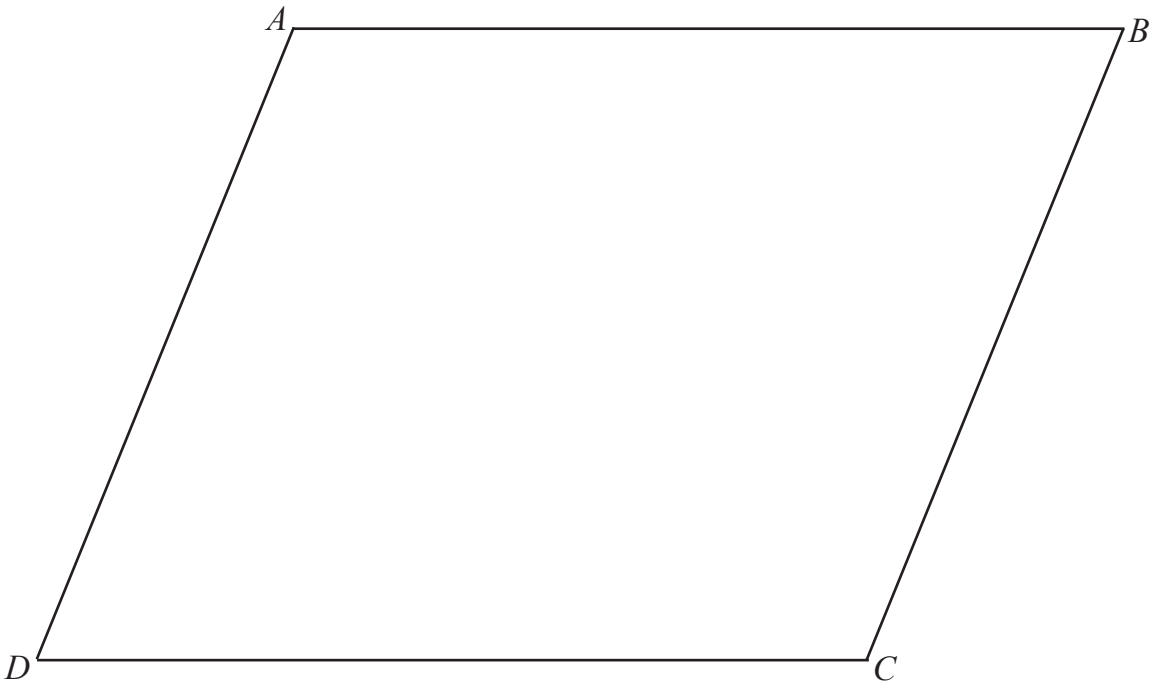
(d) Calculate $1\frac{1}{4} - \frac{5}{12}$, **show all your working** and give your final answer in its simplest form.

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

11



Use the parallelogram $ABCD$ and answer the following questions.

(a) Measure and write down the value of angle ADC.

Answer **(a)** .....° [1]

(b) Inside the parallelogram $ABCD$, using straight edges and compasses only,

(i) construct the locus of points which are equidistant from C and D, [2]

(ii) construct the bisector of angle ABC, [2]

(iii) construct the locus of points which are 4 cm from C. [1]

12 The table shows a summary of the devices used by 90 people to find information on the Internet.

Device	Frequency	Pie chart sector angle
Cellphone	35	140°
Tablet	12	48°
Laptop	25	
Desktop	18	
Total	**90**	**360°**

(a) Complete the table. [2]

(b) The ages of people using tablets are given below.

17, 19, 23, 25, 25, 31, 32, 38, 43, 46, 50, 56

Using these ages

(i) write down the mode,

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

(ii) work out the range,

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

(iii) calculate the mean.

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

(c) From this group of 90 people, one person is chosen at random.

Find the probability that

(i) this person uses a tablet. Give your answer as a fraction in its simplest form.

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

(ii) this person does not use the Internet.

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

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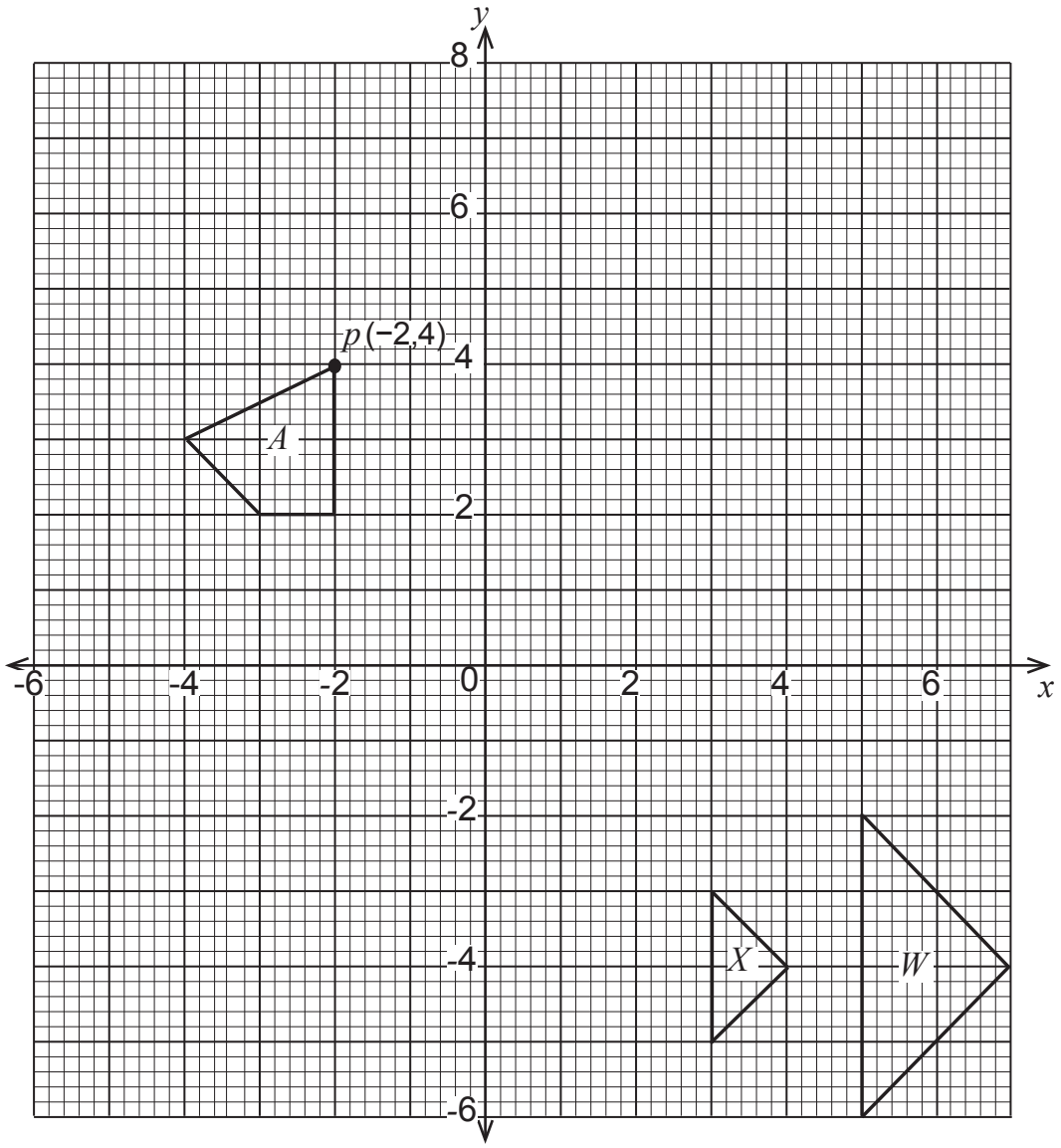
13 The grid shows figures A, X and W.



(a) Reflect figure A in the y-axis. Label the image B. [2]

(b) Rotate figure A, 90° clockwise around $p(-2,4)$. Label the image C. [2]

(c) Describe fully the single transformation which maps figure X onto figure W.

Answer **(c)** .... [3]