Centre Number	Candidate Number	Candidate Name

NAMIBIA SENIOR SECONDARY CERTIFICATE

MATHEMATICS ORDINARY LEVEL 4324/2

PAPER 2 (Extended) 1 hour 30 minutes

Marks 80 **2019**

Additional Material: Geometrical instruments
Non-programmable calculator

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.

ORDINARY LEVEL
EXTENDED

For Examiner's Use

Marker	
Checker	

This document consists of **12** printed pages.

Republic of Namibia

MINISTRY OF EDUCATION, ARTS AND CULTURE

1 (a) Ms Gossow needs the following ingredients to make 4 breads.

- sugar 500 g
- salt 25 g
- yeast 10 g

(i) Express the ratio of yeast : sugar : salt in its simplest form.

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

(ii) How many kilograms of sugar would Ms Gossow need to make 36 breads?

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

(b) In 2017, it is given that Ms Gossow's total income from selling breads was N$ 54 000.

(i) It is given that her total income in 2018 was 12% more than in 2017.

Find Ms Gossow's total income in 2018.

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

(ii) It is given that her total income of N$ 54 000 in 2017 was 20% more than her total income in 2016.

Find Ms Gossow's total income in 2016.

Answer **(b) (ii)** N$ ..... [3]

For Examiner's Use

2 It is given that log 2 = h and log 3 = k.

Express

(a) $h + k$ as a logarithm of a single number,

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

(b) log 24 in terms of h and k.

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

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3 Make y the subject of the formula

$$\sqrt{\left(\frac{m(y+n)}{y}\right)} = p.$$

Answer ..... [4]

For Examiner's Use

4 The kinetic energy, E joules, of a given mass varies directly as the square of its velocity, V m/s.

When the velocity is 5 m/s the kinetic energy is 150 joules.

(a) Write down the equation connecting the kinetic energy of the mass and its velocity.

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

(b) What will the kinetic energy be when the velocity is 10 m/s?

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

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5 The distance between town A and B is 500 km correct to one significant figure. George drives from A to B at a speed of 110 km/h correct to the nearest 10 km/h.

Find the least possible time of George's journey, giving your answer in hours and minutes, correct to the nearest minute.

Answer .....hours.....minutes [3]

For Examiner's Use

6 **(a)** Solve for x $6 \times 2^{x+1} = 96$.

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

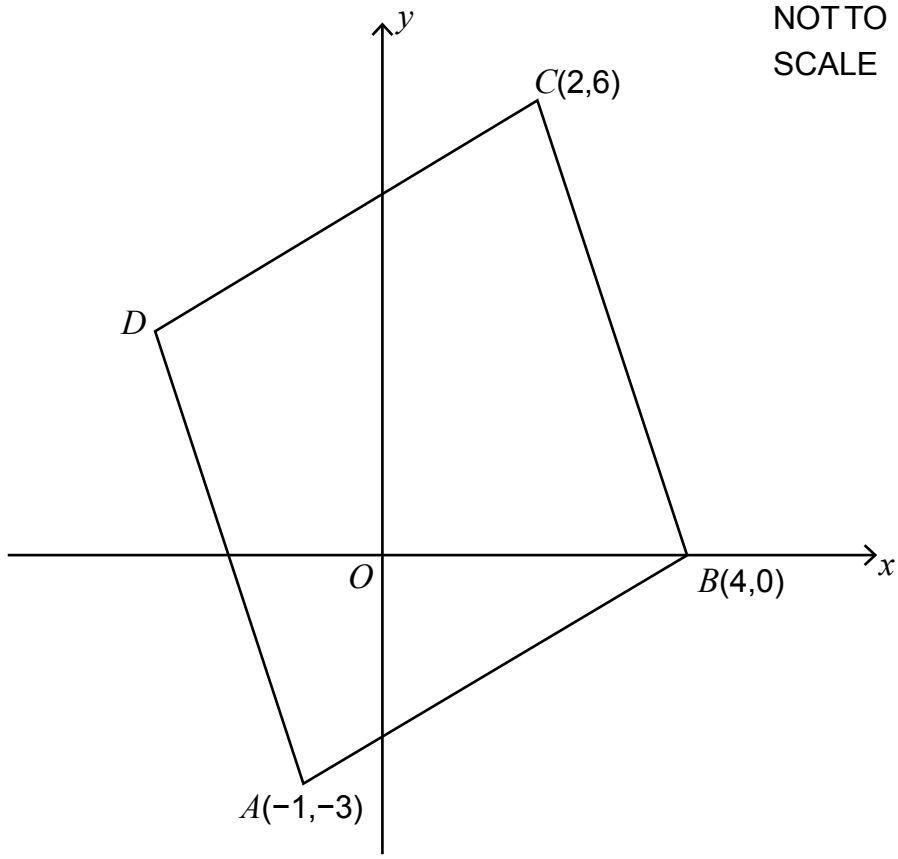
(b) Solve $x - 3 > 4$.

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

(c) Simplify $\frac{3}{x+2} - \frac{2}{x+3}$.

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

7 The diagram shows a parallelogram $ABCD$. The coordinates of A, B and C are (−1, −3), (4, 0) and (2, 6) respectively.



Find

(a) the gradient of AB and BC,

Answer **(a)** m_{AB} =..... m_{BC} =..... [2]

(b) the equations of AD and CD,

Answer **(b)** AD.....CD..... [4]

(c) the coordinates of point D.

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

8 Simplify

(a) $\frac{2n-4}{3} \div (n^2 - 4)$,

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

(b) $\frac{32^x \cdot \left(\frac{3}{8}\right)^{x-1}}{12^x}$ leaving your answer as a common fraction.

Answer **(b)** ..... [4]

[Turn over

9 Find the quotient and remainder when $8x^3 - 10x^2 + 7x + 3$ is divided by $2x - 1$.

Answer: Quotient .....

Remainder ..... [4]

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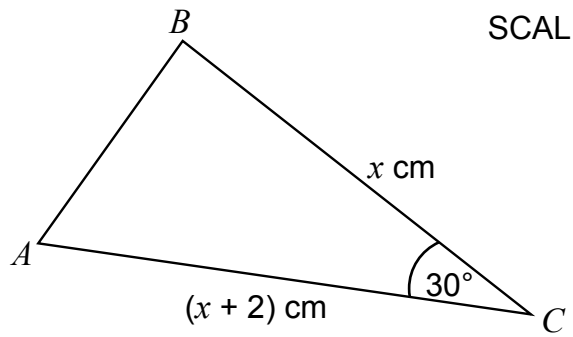
10 The diagram shows a triangle ABC in which angle C = 30°, BC = x cm and AC = $(x + 2)$ cm.

NOT TO SCALE



It is given that the area of triangle ABC is 6 cm^2. Show that the value of x is 4 cm.

Answer:

[5]

For Examiner's Use

11 **(a)** Show that the x-coordinates of the points where the line $y = 3x + 1$ crosses the curve $y = x^2 + 3$ are 1 and 2.

Answer **(a)**

[3]

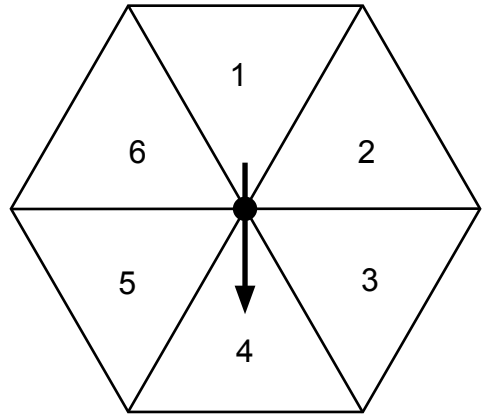
(b) Hence find the coordinates of the points of intersection of the two graphs.

Answer **(b)** (x,y) = (..... , ...) or (..... ,.....) [2]

(c) Find the gradient of the straight line joining the points found in **part (b)**.

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

12 A spinner is made from a regular hexagon and the sectors are numbered 1 to 6 in each of its six identical sectors.



When the spinner stops after it is spun, the arrow points to a number which is recorded. The spinner is spun twice.

Find, giving your answers in their simplest form, the probability that

(a) both numbers are the same,

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

(b) the sum of the two numbers is a multiple of 7,

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

(c) at least one of the two numbers is a prime number,

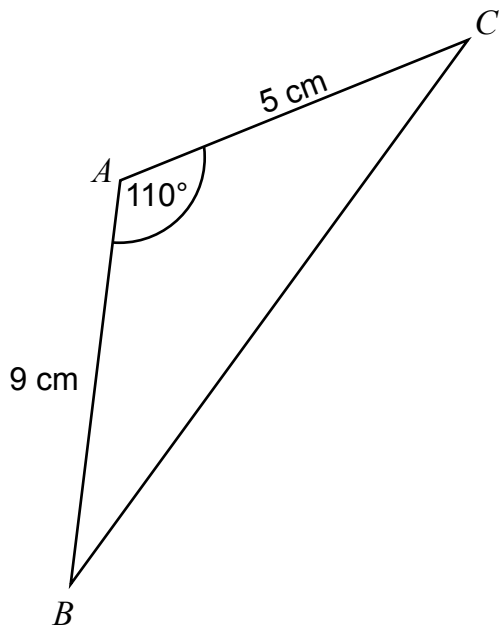
Answer **(c)** ..... [2]

(d) the product of the two numbers is a multiple of 7.

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

For Examiner's Use

13 The diagram shows triangle ABC, such that AB = 9 cm, AC = 5 cm and angle BAC = 110°.



NOT TO SCALE

Find the length of BC.

Answer.....cm [4]

14 The table shows information about the number of pets owned by 24 learners.

Number of pets	0	1	2	3	4	5	6
Frequency	1	2	3	5	7	3	3

(a) Calculate the mean number of pets.

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

(b) Andrew joins the group of 24 students.
When the information for Andrew is added to the table, the new mean is 3.44.

Calculate the number of pets that Andrew has.

Answer **(b)** .....pets [3]