



EXAMINATIONS COUNCIL OF ESWATINI  
Eswatini General Certificate of Secondary Education

CANDIDATE  
NAME

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CENTRE  
NUMBER

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**MATHEMATICS**

**6880/03**

SPECIMEN PAPER 3 Short answer Questions (Extended) **For Examination from 2021-2023**

**1 hours 30 minutes**

Additional Materials: Scientific calculator  
Geometric Instruments  
Mathematical Tables (optional)  
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 in the spaces provided on the Question Paper.

You may use a pencil for any diagrams or graphs.

Do **not** use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions.

All working should be clearly shown below each question.

The number of marks is given in brackets [ ] at the end of each question or part question.

Marks will be given for working which shows that you know how to solve the problem even if you get the answer wrong.

Scientific calculators should 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 in degrees to one decimal place.

For  $\pi$ , use either your calculator value or 3.142

The total of the marks for this paper is 80

**For Examiner's  
Use**

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| <b>Total</b> |  |

This document consists of **17** printed pages and **3** blank pages.

- 1 Write 0.000 0749 in standard form.

Answer.....[1]

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- 2 Calculate  $\sqrt{15.3} + 2.7^{2.5}$ .

Write down the full calculator display.

Answer.....[1]

---

- 3 'We eat more ice cream as the temperature rises.'

Describe the type of the correlation.

Answer.....[1]

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- 4 Write down the temperature which is 7°C below 4°C.

Answer.....°C [1]

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- 5 **Without using your calculator**, work out

$$3\frac{1}{3} - 2\frac{1}{2}$$

You must show all your working.

Give your answer as fraction in its simplest form.

Answer.....[3]

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- 6 Factorise.

$$4m^2 - n^2$$

Answer.....[2]

---

- 7 A triangle has a base of 14.3 cm and a height of 5.7 cm.  
Both measurements are correct to 1 decimal place.

Find the upper bound for the area of the triangle.

Answer.....cm<sup>2</sup> [3]

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- 8 A quarter of the circumference of a certain circle is 12 cm.

Calculate the radius of the circle.

Answer ..... [2]

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- 9 (a) (i) Work out, giving your answer in index form.

$$5^{-5} \div 5^{-3}$$

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

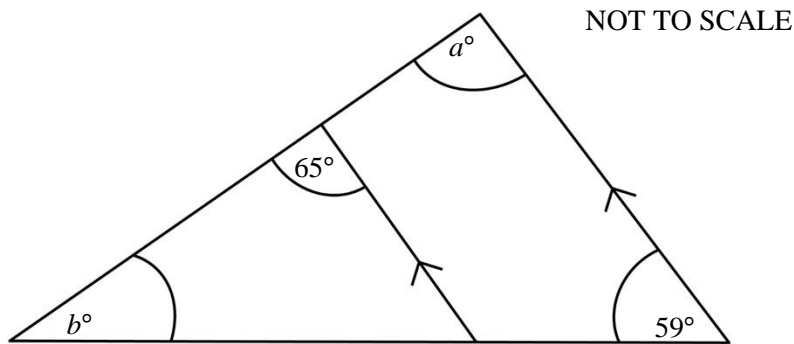
- (ii) Write your answer in (a)(i) above as a fraction.

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

- (b) Express 90 cents as a fraction of E7.20, giving your answer in its lowest terms.

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

- 10 On the triangle, the lines with arrows are parallel.



Complete the statements.

$a = \dots\dots\dots^\circ$  because .....

..... [2]

$b = \dots\dots\dots^\circ$  because.....  
.....[2]

---

**11** Find an expression for the  $n$ th term of each sequence.

**(a)** 5, 14, 23, 32, ...

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

**(b)** 16, 25, 36, 49, ...

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

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**12** You are given that  $y$  is inversely proportional to  $(x + 1)^2$ .

When  $x = 0.2$ ,  $y = 50$

(a) Write  $y$  in terms of  $x$ .

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

(b) Find the value of  $y$  when  $x = 0.5$ .

*Answer (b)*  $y =$ .....[1]

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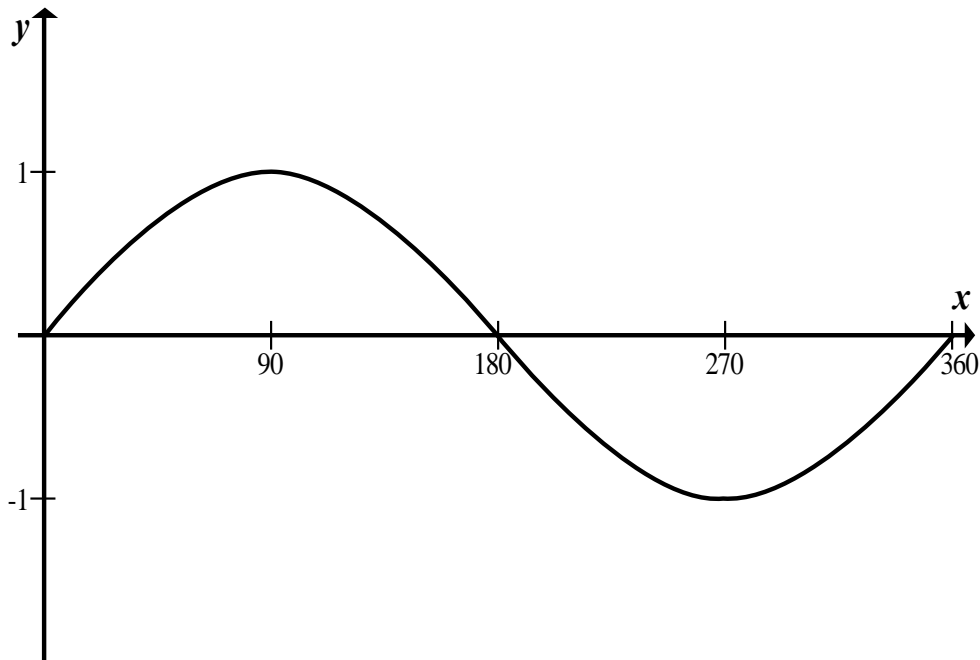
- 13** Two cylinders are similar.  
The radius of the first cylinder is 4 cm and its volume is  $402 \text{ cm}^3$ .  
The radius of the second cylinder is 3 cm.

Calculate the volume of the second cylinder.

*Answer*.....cm[3]

---

- 14 The following is a graph of a trigonometric function.



- (a) (i) Give the equation of the graph of the trigonometric function.

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

- (ii) State the amplitude of the function.

*Answer (a)(ii)  $x = \dots\dots\dots [1]$*

- (b) Solve for values of  $x$  between  $0^\circ$  and  $360^\circ$ .

Give your answers correct to 1 decimal place.

- (i)  $\sin x = 0.785$

*Answer (b)(i)  $x = \dots\dots\dots^\circ$  and  $\dots\dots\dots^\circ [2]$*



(ii)  $\cos x = -0.667$

*Answer (b)(ii)  $x = \dots\dots\dots^\circ$  and  $\dots\dots\dots^\circ$  [2]*

(iii)  $\tan x = -\frac{3}{\sqrt{40}}$

*Answer (b)(iii)  $x = \dots\dots\dots^\circ$  and  $\dots\dots\dots^\circ$  [2]*

15 You are given  $K = \begin{pmatrix} -3 \\ 5 \end{pmatrix}$  and  $L = \begin{pmatrix} 7 \\ 2 \end{pmatrix}$ .

Find.

(a)  $3|K|$

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

(b)  $K - 3L$ .

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

- 16** Solve the simultaneous equations.  
Show all your working.

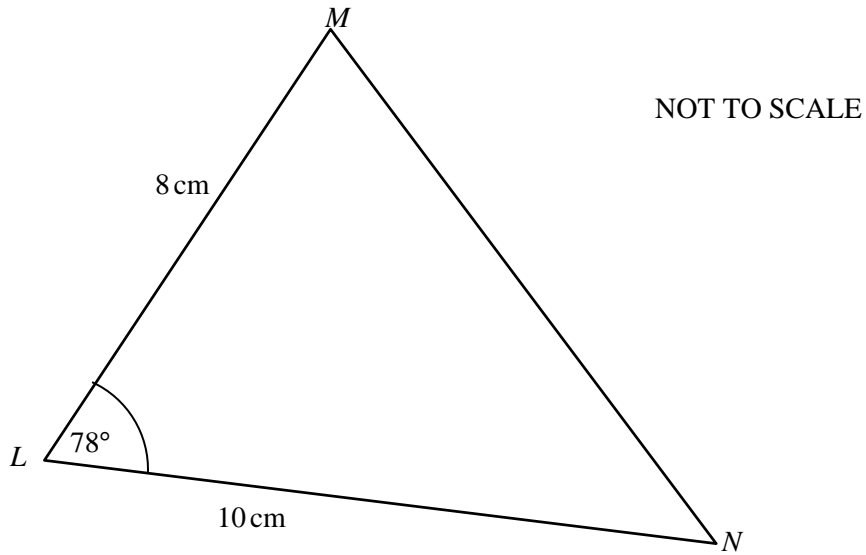
$$4x + y = 26$$

$$3x + 2y = 17$$

*Answer*  $x = \dots\dots\dots y = \dots\dots\dots$ [3]

---

17 Triangle  $LMN$  has side  $LM = 8$  cm,  $LN = 10$  cm, angle  $MLN = 78^\circ$ .



(a) Find the length of side  $MN$ .

Answer(a).....cm [4]

(b) Calculate the area of triangle  $LMN$ .

Answer(b).....cm<sup>2</sup> [2]

18 (a) Express as a single fraction.

Give your answer in its simplest form.

$$\frac{5}{x+3} - \frac{2}{x}$$

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

(b) Simplify.

$$\frac{x^2 - 3x}{x^2 + x - 12}$$

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

- 19** Solve the equation  $2x^2 + 7x - 3 = 0$ .  
Show all your working.  
Write your answers correct to 2 decimal places.

*Answer*  $x = \dots\dots\dots$  or  $x = \dots\dots\dots$  [4]

---

- 20** The equation of a straight line is

$$y = 5 - \frac{3}{4}x.$$

- (a)** State the gradient of the line.

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

- (b)** State the gradient of a line that is perpendicular to the line  $y = 5 - \frac{3}{4}x$ .

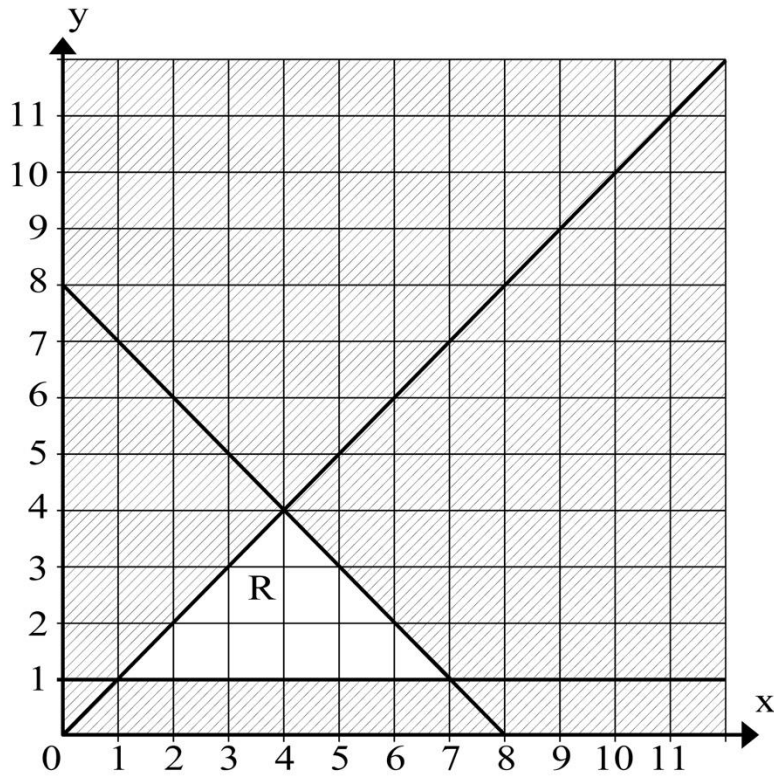
*Answer* (b).....[1]

- (c) Find the equation of a line that is parallel to  $y = 5 - \frac{3}{4}x$  and passes through  $(3, -2)$ .

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

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21



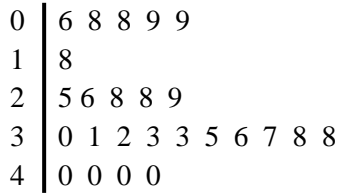
One of the inequalities that defines the unshaded region R is  $y \geq 1$ .

Write down the other two inequalities.

.....

.....[3]

**22** Learners in a form 3 class took a test.  
There were 25 learners in the class.  
The stem-and-leaf diagram show their marks out of 40 marks.



Key: 1|8 means 18.

**(a)** Find the percentage of learners who got more than 32 marks each.

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

**(b)** State the mode.

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

**(c)** Calculate the mean mark.

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



23 The mass,  $m$  grams, of sugar in each of 200 packets is recorded.

The data is recorded in the frequency table.

|                   |                    |                    |                    |                    |
|-------------------|--------------------|--------------------|--------------------|--------------------|
| Mass ( $m$ grams) | $496 < m \leq 500$ | $500 < m \leq 504$ | $504 < m \leq 508$ | $508 < m \leq 510$ |
| Frequency         | 16                 | 74                 | 104                | 6                  |

(a) Calculate an estimate of the mean mass.

Answer (a).....g [4]

(b) The data in the frequency table is to be used to draw a histogram.

Complete the frequency density table.

|                   |                    |                    |                    |                    |
|-------------------|--------------------|--------------------|--------------------|--------------------|
| Mass( $m$ grams)  | $496 < m \leq 500$ | $500 < m \leq 504$ | $504 < m \leq 508$ | $508 < m \leq 510$ |
| Frequency Density | 4                  |                    |                    |                    |

[2]

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