EXAMINATIONS COUNCIL OF LESOTHO
Lesotho General Certificate of Secondary Education

CANDIDATE NAME											
CENTRE NUMBER						CANDIDATE NUMBER					

MATHEMATICS

Paper 1 (Core)

0178/01

October/November 2018

1 hour

Candidates answer on the Question Paper.

Additional Materials: Geometrical Instruments
Tracing Paper (optional)

603

READ THESE INSTRUCTIONS FIRST

Write your name, centre number and candidate number 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.
If working is needed for any question it must be shown below that question.

ELECTRONIC CALCULATORS **MUST NOT** BE USED IN THIS PAPER.

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 60.

AU14

This document consists of **9** printed pages and **3** blank pages.

1 Evaluate.

(a) $9 \times 2 + 20 \div 2$

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

(b) $2^3 \times 3^2$

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

(c) $2\frac{5}{8} \div 1\frac{1}{4}$

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

---

2 By rounding each number to **one** signifcant figure, estimate the value of $\frac{410 \times 6.78}{0.23}$

Answer ..... [2]

---

3 **(a)** The number of people at a football match is 27 359.

Write the number to one significant figure.

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

(b) The number of people who sat in stand A is 2 500 correct to two significant figures.

Find the largest number of people that could have sat in stand A.

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

---

4 A rectangular painting measures 4.5×10^3 mm by 3×10^2 mm.

Calculate, giving your answer in standard form,

(a) The perimeter of the painting,

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

(b) the area of the painting.

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

---

5 **(a)** Mpho's salary is M4 400.

Calculate her new salary after a 5% increase.

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

(b) Thato and Pule share M3 500 in the ratio 3:2.

Calculate Pule's share.

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

(c) Peo invests M4000 for 3 years at the rate of 8% per annum simple interest.

Calculate the interest he receives after 3 years.

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

---

6 **(a)** Express $\frac{x-1}{3} - \frac{2x-1}{2}$ as a single fraction.

Write your answer as simply as possible.

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

(b) **(i)** State the order of matrix $(2 \quad 0 \quad -3)$.

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

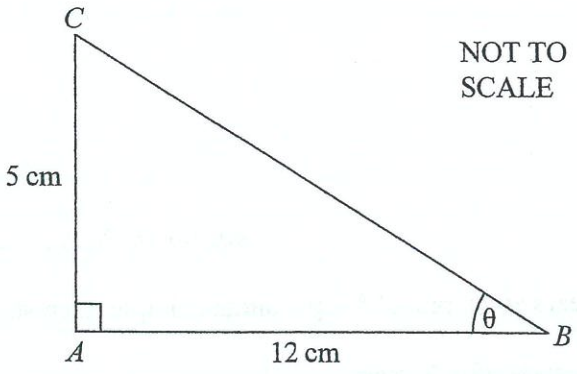
(ii) Given that $\begin{pmatrix} 2 & 4 \\ a & 3 \end{pmatrix} + k\begin{pmatrix} 3 & 1 \\ 0 & -2 \end{pmatrix} = \begin{pmatrix} 8 & 6 \\ -3 & -1 \end{pmatrix}$.

Find the values of a and k.

Answer (b)(ii) $a =$ ..... $k =$ ..... [2]

---

7 In the triangle ABC, $AB = 12$ cm, $AC = 5$ cm and angle $ABC = \theta$.



Find

(a) BC,

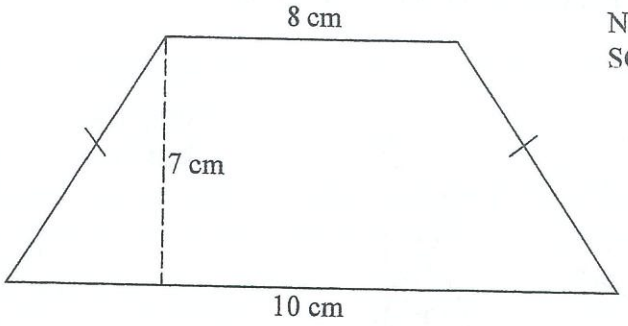
Answer (a) ..... [2]

(b) the value of $\cos\theta$.

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

---

8 The diagram shows a pit in a shape of a trapezium.



NOT TO SCALE

(a) What is the special name of the trapezium?

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

(b) Write the number of lines of symmetry of the trapezium.

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

(c) Find the area of the trapezium.

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

---

9 **(a)** Solve.

$4 - x = x - 4$

Answer (a) $x =$ ..... [2]

(b) Solve the simultaneous equations.

$x - y = 5$

$2x + y = 7$

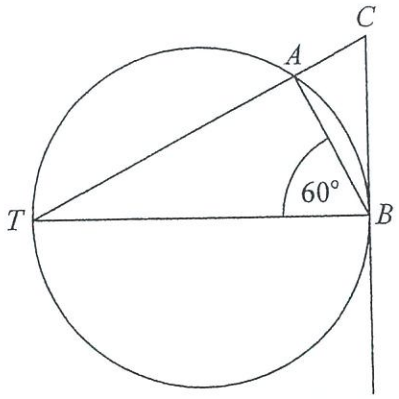
Answer (a) $x =$ .....

$y =$ ..... [3]

---

10 The diagram shows a circle with points A, B and T on the circumference.
BT is the diameter of the circle, TAC is a straight line and BC is a tangent.

Angle $ABT = 60°$.



NOT TO SCALE

Find

(a) angle BTA,

Answer (a) Angle BTA = ... [1]

(b) angle BCA.

Answer (b) Angle BCA = ... [2]

11 Here is a list of numbers.

36 29 41 45 15 10 13

(a) Find

(i) the range,

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

(ii) the median.

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

(b) Calculate the mean of the numbers.

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

(c) Find the probability that a number chosen at random from this list is prime.

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

12 **(a)** A straight line passes through the points $(-1, -2)$ and $(0, -3)$.

(i) Find the gradient of the line.

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

(ii) Write the equation of the line.

Answer (a)(ii) $y =$ ..... [1]

(b) Here is a mapping.

Input		Output
-1	→	-5
0	→	-3
1	→	-1
3	→	
	→	7

(i) Complete the rule for the mapping.

[2]

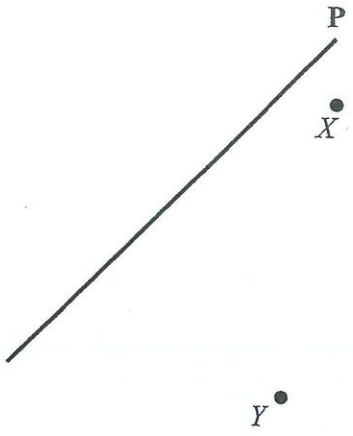
(ii) Complete the table for this mapping. [2]

(c) Given that $f(x) = \frac{1}{3}x - 1$,

find $f(6)$.

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

13 The diagram shows the position of the two houses X and Y and a path P.



Scale 1 cm represents 25 m

A public phone is installed such that it is

- less than 125 m from X
- nearer to Y than X
- more than 100 m from the path.

[4]

Using ruler and compasses only, find the region where the public phone can be placed.

Label it T.

[1]

BLANK PAGE

BLANK PAGE

BLANK PAGE