Name: ……..…. Class…..…..……

KALOKE CHRISTIAN HIGH SCHOOL
MATHEMATICS DEPARTMENT

Uganda Certificate for Lower Secondary Education

MATHEMATICS

P456/ 1

2 HOURS

INSTRUCTIONS TO CANDIDATES:

Answer **all** questions.
If working is needed for any question it must be shown below that question.
Essential working must be shown for full marks to be awarded.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.
The total number of marks for this paper is 80.

1 Express as a single fraction

(a) $\frac{5}{7} - \frac{2}{5}$

Answer ..... [2]

(b) $1\frac{1}{5} - 2\frac{1}{3}$

Answer ..... [2]

2 The temperature in a freezer is –18 °C.
The outside temperature is 24 °C.
(a) Find the difference between the outside temperature and the freezer temperature.

Answer ..... °C [2]

(b) The temperature in a fridge is 22 °C warmer than the freezer temperature.
Find the temperature in the fridge.

Answer ..... °C [2]

3 (a) Work out $12 + 8 \div (9 - 5)$.

Answer ..... [2]

(b) Work out $0.018 \div 0.06$.

Answer ..... [2]

4 The table shows information about the annual coffee production of some countries in a recent year.

Country	**Number of bags per year**
Brazil	
Vietnam	1.85×10^7
Colombia	9.2×10^6
Indonesia	8.5×10^6

(a) In the same year, Brazil produced 48 million bags of coffee.
Complete the table with the coffee production for Brazil, using standard form. [1]

(b) How many more bags of coffee were produced in Vietnam than in Colombia?

Answer ..... [1]

(c) The mass of a bag of coffee is 60 kg.
Work out the number of kilograms of coffee produced in Indonesia.
Give your answer in standard form.

Answer ..... kg [2]

5 (a) The ratio of boys to girls in a class is 4 : 5 .
What fraction of the class are boys?

Answer ..... [2]

(b) The ratio of boys to girls in a school is 3 : 4 .
There are 120 more girls than boys.
How many students are in the school?

Answer ..... [2]

6

0.2	2	$\sqrt{2}$	$\frac{1}{3}$	0.83	8	81

From the numbers listed above, write down
(a) a square number,

Answer ..... [1]

(b) a cube number,

Answer ..... [1]

(c) an irrational number.

Answer ..... [1]

(d) a natural number,

Answer ..... [1]

7 a) Write these numbers in order, starting with the smallest.

$\frac{3}{4}$ 0 –1 $-\frac{17}{20}$ $\frac{4}{5}$

Answer ....., ..., ..., ..., ... [1]
Smallest

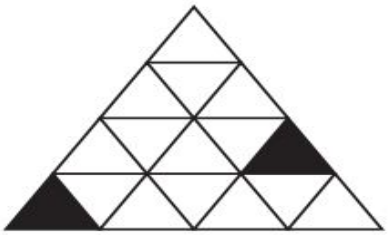
b) The first four terms u_1, u_2, u_3 and u_4, in a sequence of numbers are given by
$u_1 = \mathbf{1} \times 2 + 3^2 = 11$
$u_2 = \mathbf{2} \times 3 + 4^2 = 22$
$u_3 = \mathbf{3} \times 4 + 5^2 = 37$
$u_4 = \mathbf{4} \times 5 + 6^2 = 56$.
(a) Evaluate u_5.

Answer ..... [2]

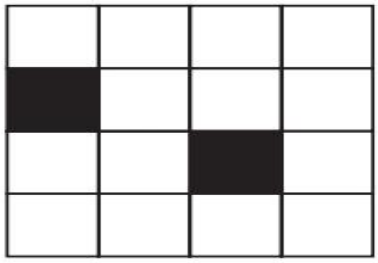
(c) The nth term of the sequence is u_n.
Write down an expression for u_n in terms of n.

Answer ..... [1]

8 (a) In the diagram, two small triangles are shaded.
Shade **one** more small triangle, so that the diagram will then have one line of symmetry. [2]



(b) In the diagram, two small squares are shaded.
Shade **two** more small squares, so that the diagram will then have rotational symmetry of order 2. [2]



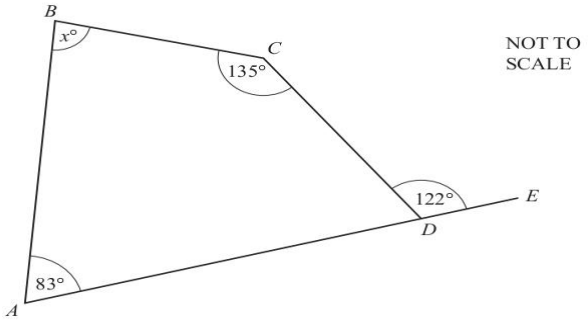
9 (a) Find the Highest Common Factor (HCF) of 36 and 54.

Answer ..... [2]

(b) Estimate, correct to the nearest whole number, the value of $\sqrt{97} - \sqrt{35}$.
Show clearly the approximate values you use.

Answer ..... [2]

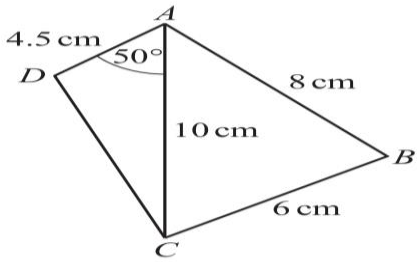
10 a) The diagram shows quadrilateral *ABCD* with *AD* extended to *E*.
Angle *BCD* = 135°, angle *BAD* = 83° and angle *CDE* = 122°.



Find the value of *x*.

x = ... [4]

b) The diagram shows a sketch of quadrilateral *ABCD*.



(i) Construct an accurate drawing of *ABCD*. [5]

(ii) Measure ∠*ADC*. ..... [1]

C) Plot the line 2y = x then form the image of the object using the line 2y = x as the mirror line [4]