**Name……………………………………………………………….............................. Adm No ……………………………...**

 Candidate’s Signature ………………………….

**121/1** Date: ………………………………...

**MATHEMATICS**

**PAPER 1**

**June 2018**

**TIME: 2 HOURS**

**DAKU SECONDARY SCHOOL**

***Kenya Certificate of Secondary Education (K.C.S.E)***

**121/1**

**Mathematics**

**Paper 1**

 **2 hours**

**INSTRUCTIONS TO THE CANDIDATES**

1. *Write* ***your name*** *and* ***admission number*** *in the spaces provided above*
2. *This paper contains one section;* ***Section*** *1*
3. *Answer all the questions in* ***section***
4. *All workings and answers must be written on the question paper in the spaces provided below each question.*
5. *Marks may be given for correct working* ***even if*** *the answer is wrong.*
6. *KNEC Mathematical tables may be used* ***EXCEP****T where stated otherwise.*
7. *Show all the steps in your calculations, giving your answers at each stage in the spaces below each question.*
8. *No not use electronic calculators.*

**FOR EXAMINERS’S USE ONLY**

**Section 1**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Question | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | Total |
| Marks |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| 17 | 18 | Total |
|  |  |  |

 **GRAND**

 **TOTAL**

*This paper consists of ten printed pages.*

**SECTION I**

***Answer all questions***

1. a) Evaluate the following

$\frac{3}{4} of \frac{2}{5}\left(\frac{5}{7}\right.+ \left.\frac{4}{21}\right)$ (3 marks)

1. Three light signals are set in such a way that they light after every 35, 40 and 45 seconds. If the three lighted together at 9:00am, at what time will they light together again? (3 marks)
2. Express the following numbers as a product of its prime factors.
3. 1960 (2 marks)
4. 512 (2 marks)

Hence use your solution above to evaluate $ \frac{1960}{512}$ (1 mark)

1. Mr Chrispoh, the mathematics teacher at Daku secondary school is 15 years older than his form one student, Athman. If Athman will be 17 years old in 2 years time, what is Mr. Chrispoh’s current age? (3 marks)
2. Expand the following

3(3x + 5) (2 marks)

1. Factorize the following
2. 4mn + 16m2 (2 marks)
3. Factorize by grouping (3 Marks)

3ab + 2b + 3ca + 2c

1. Convert the following recurring decimal to fractions

0.$\dot{4}\dot{5}$ (2 marks)

1. Convert the following fractions to decimals
2. $\frac{5}{8}$ (1 marks)
3. $\frac{4}{5}$ (1 marks)
4. Use your mathematical tables to find the square of the following numbers
5. 242
6. 7.82 (2 marks)
7. Simplify the following

$\frac{\left(+2\right)+\left(-6\right)-(-8)}{\left(+6\right)+(-4)}$ (3 marks)

1. Show on the number line the sum and the difference of the following
2. (-9) + (+8) =
3. (+5) – (-6) = (2 marks)
4. Mr. Momanyi bought 12 mangoes for his form one mathematics students. Before he submitted the mangoes to the students, the principal and the deputy added 50 and 40 mangoes respectively. Given that each student received one mango and 13 mangoes remained,
5. How many students are in form one? (3 marks)
6. If the form two class has 38 students less than form one, calculate the number of form two students. (2 marks)
7. Evaluate

$\frac{\left(+7\right) × \left(-2\right) × (-4)}{\left(-8\right)÷(+2)}$ (3 marks)

1. What is the place value of the following underlined digits
2. 283746539
3. 620092 (2 marks)
4. Use elimination method to solve for x and y in the following simultaneous equations. 2x + 3y = 12

3x + y = 11 (3 marks)

1. Use your mathematical tables to evaluate
2. $√34$ (1 mark)
3. $√25.36$ (1 mark)
4. Calculate the area of the following circle whose radius is 3.5cm. Take $π=\frac{22}{7}$ (3 marks)

 3.5 cm

**SECTION II**

***Answer all questions***

1. (a). The following are the co-ordinates of the vertices of triangle ABC. A(3,2), B(4,-2) and C(-1,-3). Plot the co-ordinates and join the vertices to form the triangle. (3 marks)

b). fill the following table for the values of y for the equation whose line is y=2x + 4 (2 marks)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| X | -3 | -2 | -1 | 0 | 1 | 2 |
| Y |  |  |  |  |  |  |

c). use the co-ordinates above to draw a straight line on the graph provided below. (3 marks

d) Solve for x in the following equation

 3x + 4 = 10 (2 marks)

1. a) John, a form one student bought 5 bibles and 2 Qurans for ksh 1,600 and Mohammed bought 3 bibles and 4 Qurans for ksh 1,800. Calculate the cost for one bible and one quran. (4 marks)

b). use substitution method to solve for x and y in the following simultaneous equations.

 y + 4x = 17

 3y + x = 7 (3 Marks)

c). given that x=2, y=4 and z=-5, evaluate

 $\frac{6x-4}{2y}+z$ (3 Marks)