MATHEMATICS PAPER 1 - 2020 KCSE PREDICTION SET 1(QUESTIONS AND ANSWERS)

SECTION A (50MKS)

*Answer **ALL** the questions in this section in the spaces provided.*

1. Evaluate (3 mks)

$$\frac{-4\ of\ (-4+-15\div 5+-3-4\div 2)}{84\div -7+3--5}$$

2. Simplify (2 mk)

$$\frac{9x^2-1}{3x^2+2x+1}$$

3. Solve the following inequality and state the integral solutions. (3 marks)

$$\tfrac{1}{2}(24-4x)>6(3x-\tfrac{4}{3})\geq -\tfrac{2}{3}(42+3x)$$

4. The position vector of P is **OP = 2i – 3j** and M is the mid – point of PQ. Given **OM = i + 4j**, Obtain the vector **PQ.** (3 marks)

5. Use tables of reciprocals only to work out. (3 mks)

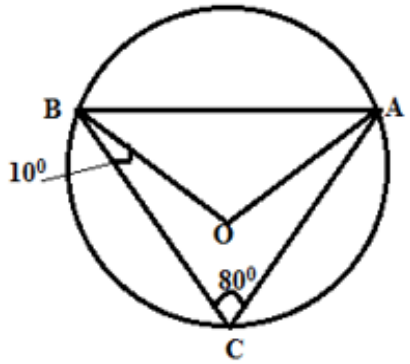
$$\frac{5}{0.0396}+\frac{12}{0.593}$$

6. A straight line passes through points A (-2,6) and B (4, 2).
   a. M is the midpoint of line AB. Find the coordinate of M. (2 mks)
   b. Determine the equation of a straight line passing through point M and is perpendicular to AB. (2 mks)

7. An open right circular cone has radius of 5cm and a perpendicular height of 12cm. Calculate the surface area of the cone.
   (take π =3.142). (3 mks)

8. Mary spends a total of sh. 970 on buying 3 text books and 5 pens. If she had bought 2 textbooks and 8 pens, she would have saved sh. 90. Find the cost of one textbook. (3 mks)

9. In the figure below O is the centre of the circle. <BCA =80^0 and <CBO = 10^0. Determine the size of <CAB. (3 mks)



10. In a bookstore, books packed in cartons are arranged in rows such that there are 50 cartons in the first row, 48 cartons in the next row, 46cartons in next and so on.
    a. How many cartons will be there in 8^{th} row. (2 mks)

MARKING SCHEME

1.	$\frac{4\text{ of}(-4-3)+3-2}{-12+3+5}$ $\frac{4\text{ of }(-7-3-2)}{-4}$ $\frac{48}{-4}$ $=-12$	M1 M1 A1	for numerator for denominator
		03	
2.	Nume (3x+1) (3x-1) Den (3x-1) (x+1) $\frac{(3x+1)(3x-1)}{(3x-1)(x+1)}$ $\frac{3x+1}{x+1}$	M1 M1 A1 03	
3.	$12-2x>18x-8$ $=20x>-20$ $x<1$ $18x-8\geq -28-2x$ $20x\geq -20$ $X\geq -1$ $-1\leq x<1$ Integral solutions: 0 ,1	M1 M1 A1	
4.	PM = PO + OM = - (2i – 3j) + (I + 4j) = -2i + 3j + I + 4j = -i + 7j | PQ = 2 PM = - 2i+ 14j.	M1 A1	
		02	
5.	$\frac{5}{0.1396}+\frac{12}{0.593}$ 65(7.161) + 12(1.686) 35.805 + 20. 232 =56.037	M1 M1 A1	
		03	