**HEIGHTS SECONDARY SCHOOL –THIKA
FIRST-TERM 2017 FORM THREE
MID-TERM EXAMINATION
MATHEMATICS
TIME: 21/2HOURS**

1. **Solve for x in the equation**$\frac{x-2}{3}$ **-**$\frac{3-x}{4}=\frac{x-2}{2}$ **(3mks)**
2. Three bell rings at an interval of 40 minutes, 45 minutes, and 60 minutes, if they ring simultaneously at 6:30 am. At what time will they ring next together (3mks)
3. Evaluate (3mks)

$\frac{1}{2}\left\{\frac{3}{5}+\frac{1}{4}\left(\frac{7}{3}-\frac{3}{7}\right)of1\frac{1}{2}\right.÷5$}

1. Mr Kamau a salesman in soup industry sold 250 pieces of toilet soup at sh 45 and 215 packets of detergent at sh 75 per packet. If he got 5% commission on sales. How much money did he get as a commission? (3mks)
2. The size of an interior angle of a regular polygon is 1560. Find the number of sides of the polygon (3mks)
3. The temperature of a body is measured and recorded as 29.50C. find the percentage error (3mks)
4. A positive two- digit number is such that the product of its digit is 24. when the digit are reversed the number formed is greater than the original number by 18. find the number (4mks)
5. The cost of 5 skirts and three blouses is Sh 1750; Mueni bought three of the skirts and one of the blouses for Sh 850. Find the cost of each item. (3mks)
6. Use logarithm to evaluate (4mks)

 $\sqrt{\frac{4.562×0.038}{0.82}}$
7. The equation of a line is $\frac{-3}{5}x+3y=6$
Find the :
a) Gradient of the line (1mk)

b) Equation of a line passing through point (1,2) and perpendicular to the given line .(3mks)
8. The area of a sector of circle radius 63 cm is 4158 cm2. Calculate the angle subtended at the center of the circle (take $π=\frac{22}{7}$) (3mk)
9. express the following recurring decimal as single fraction (2mks)
0.7$\dot{3}$
10. Three people Samuel, Leah and Osman contributed money to start a business .Samuel contributed a quarter of the total amount and Leah Contributed two fifth of the remainder .Osmas’s contribution was one and half times that of Samuel. They borrowed the rest of the money from the bank which was shillings 60,000 less than Samuels contribution.
Find the total amount required to start the business. (3mks)
11. The sum of four consecutive numbers is 72. find the numbers (3mks)
12. Solve the following pair of inequalities and represent the solution in a single number line (4mk)
3x-11$\leq 4$
2x+3$>5$
13. evaluate
48$÷\frac{3}{4}$ of$\left(25-9\right)$+3$×4$ (2mks)

SECTION B
Answer all the question in this section
14. The table below shows marks scored by 90 students in a mathematical test.
(a) complete the table for the values of (fx) and (cf) (2mks)
(b) identify the modal class (1mk)
(c) find the mean score (3mks)
(d) find the median (4mks)


15. Draw the graph of the given function over the given range and use it to solve the given equation (10mks)
y=2x2+x-2 for -3$\leq x\leq 2$

(a) 2x2+x-2=5
(b) 2x2+x-5=0
(c) 2x2+2x-3=0
16. The figure represents a right cone of base radius 28cm from which a small cone is cut off to form a frustrum. The top radius of the frustrum is 21cm and its height is 10 cm as shown below. calculate the total surface area of the frustrum (10mks)


17. The figure below shows a circle centre O and a cyclic quadrateral PQRS. PR=RQ angle PRQ is 700 and QOS is a straight line. Giving reason for your answer. find the size of

(a) angle PRS (2mks)

(b) angle POQ (2mks)

(c) angle RPS (2mks)

(d) angle PSR (2mks)

(e) reflex angle POQ (2mks)
18. The figure alongside shows two circles centre A and B and radius 6cm and 8cm respectively. the circle intersect at P and Q
angle PAB=420 and ABQ=300



(i) find the size of the angle PAQ and PBQ (2mks)

(ii) calculate to one decimal place the area of
(a) sector APQ and PBQ (2mks)

(b) Triangle APQ and PBQ (2mks)

(c) the shaded area ($π= ^{22}/\_{7}$) (4mks)