

GATITU SECONDARY SCHOOL BOX 327 GATUNDU.

MATHEMATICS FORM 3 TERM 1 2014 TUNE-UP.

NAME MARKING SCHEME ADM- 111

Answer all the questions in this paper.

1 Simplify $\frac{p^2 + 2pq + q^2}{p^3 - pq^2 + p^2q - q^3}$

(4mks)

$$\frac{p^2 + pq + pq + q^2}{p(p^2 - q^2)q(p^2 - q^2)}$$
$$\frac{p(p+q) + q(p+q)}{(p+q)(p^2 - q^2)}$$

$$\frac{(p+q)^2}{(p+q)(p^2 - q^2)}$$
$$\frac{p+q}{(p+q)(p-q)}$$

$$\frac{1}{p-q}$$

(2mks)

2 Find the square root of 2704 by factorization.

$$2704 = \underline{2} \times \underline{2} \times \underline{2} \times \underline{2} \times \underline{13} \times \underline{13}$$

$$2 \times 2 \times 13 = \underline{52}$$

(3mks)

3 Solve the simultaneous equations.

$$(4x + 12y = 11) \quad 3$$

$$12x - 4y = 3$$

$$\begin{array}{r} 12x + 36y = 33 \\ - 12x - 4y = 3 \\ \hline \end{array}$$

$$40y = 30$$

$$y = \frac{30}{40}$$

$$y = \frac{3}{4}$$

$$4x + 9 = 11$$

$$4x = 2$$

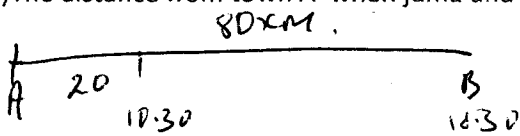
$$x = \frac{2}{4}$$

$$x = \frac{1}{2}$$

4 Two towns A and B are 80 KM apart. Juma started cycling from town A to town B at 10.00am at an average speed of 40km/ph. Mutuku started his journey from town B to town A at 10.30am and travelled by car at an average speed of 60km/h. Calculate:

(a) The distance from town A when juma and Mutuku met.

(5mks)



$$D = 60 \text{ km}$$

$$R = 100 \text{ km.}$$

$$S = \frac{D}{T}$$

$$T = \frac{D}{S}$$

$$\frac{60}{100} = 0.6 \text{ hrs.}$$

$$60 \times 0.6 = 36 \text{ km.}$$

$$80 - 36$$

$$= \underline{\underline{44 \text{ km}}}$$

(b) The time of the day when the two met.

(2mks)

$$0.6 \text{ hrs} \times 60 = 36 \text{ min.}$$

$$\begin{array}{r} 10.30 \\ + \quad 36 \\ \hline \underline{\underline{11.06 \text{ AM}}} \end{array}$$

©Kamau started cycling from town A to town B at 10.21am. he met Mutuku at the same time as Juma did. Determine Kamaus average speed.

(3mks)

$$\begin{array}{r} 39 \\ + 6 \\ \hline \underline{\underline{45 \text{ min.}}} \end{array}$$

$$D = 44 \text{ km.}$$

$$\frac{44}{\frac{45}{60}} = \frac{44 \times 4}{3}$$

$$44 \times \frac{4}{3}$$

$$= 58.7 \text{ km/h}$$

5 Work out without using mathematical tables or calculator.

$$\sqrt[4]{0.25 \times 0.08 \times 0.5}$$

$$\sqrt[4]{0.0625 \times 2.56}$$

$$\sqrt[4]{\frac{25 \times 8 \times 5}{625 \times 256}}$$

$$\frac{25}{5} \quad \frac{32}{32}$$

$$\sqrt[4]{\frac{1}{16}}$$

$$16 = 2^4$$

(3mks)

$$\frac{1}{2}$$

6 A straight line passes through points (-2,1) and (6,3). Find :

(a) The equation of the line in the form $Y = MX + C$

$$\frac{3-1}{6+2} = \frac{2}{8} = \frac{1}{4}$$

$$\frac{y-3}{x-6} = \frac{1}{4}$$

$$y-3 = \frac{1}{4}(x-6) \quad (2MKS)$$

$$y-3 = \frac{1}{4}x - \frac{3}{2} + 3$$

$$y = \frac{1}{4}x + \frac{3}{2}$$

(2mks)

(B) The gradient of a line perpendicular to the line in (a)

$$G = -4$$

7 solve the inequalities $x-5 \leq 3x-8$ and $2x-3$

$$x-5 \leq 3x-8$$

$$-5+8 \leq 2x$$

$$3 \leq 2x$$

$$\frac{3}{2} \leq x$$

$$3x-8 < 2x-3$$

$$x < -3+8$$

$$x < 5$$

$$\frac{3}{2} \leq x < 5$$

(3mks)

(B) Represent the solution on a number line.

(2mks)

