MID- TERM EXAM

Time - $1\frac{3}{4}$ hours

Answer all questions in the spaces provided

1. Simplify the following by use of common factors.3mks

$\frac{b2-4b}{b-4}$

$\frac{b^2-4b}{b-4}$

Ans $= \frac{b(b-4)}{b-4}$

$= b$

2. Factorize the following expression.2mks

$2ab + abk - 2m - mk = ab(2+k) - m(2+k)$

3. The ratio of boys to girls in a class is 3:5. If there are 16 girls in the class how many boys are there? 3mks?

B : G

3 : 5 = 8

Boys $= \frac{3}{8} \times 16$

$= 6$

4. The cost of a text book was raised by 20% and a month later the new price was lowered by 10%.what was the final price of the text book if the original price of the text book was 600.4mks

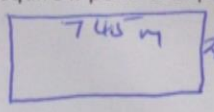
$P_2 = \frac{120}{100} \times 600$

$= Sh.720$

$P_3 = \frac{90}{100} \times 720$

$= Sh.648$

5. A man wants to fence his plot which measures 745m by 230m. How many fencing posts will he require if posts are spaced 5m apart? 3mks?



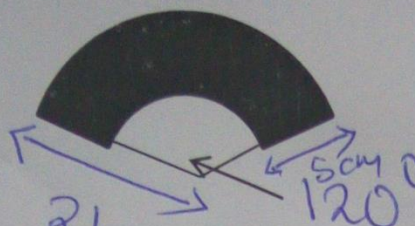
$P = 2(745 + 230)$

$= 1950$ m

No. of Post $= \frac{1950}{5}$

No. of post =

6. Calculate the area of the shaded region in the figure below. 4mks



$A_B = \frac{\theta}{360} \pi R^2$

$= \frac{120}{360} \times \frac{22}{7} \times 21 \times 21$

$= 462\ cm^2$

$A_s = \frac{\theta}{360} \pi r^2$

$= \frac{120}{360} \times \frac{22}{7} \times 16 \times 16$

$= 268.19$

$A_{shaded} = 462 - 268.19$

$= 193.81$

7. A car can travel 60km on 4litre of petrol. How far can it travel on 15 litres of petrol.3mks?

4 Litres = 60km

1 Litre = $\frac{60}{4}$ km

$15L = \frac{60}{4} \times 15$

$= 225$ km.

8. A can contains 5litres of petrol .if the weight is 4kg, calculate the density of petrol. 3mks in g/cm^3

$d = \frac{M}{V}$

$d = \frac{4000\ cm^3}{5000}$

$= 0.8\ g/cm^3$

9. A.A car left Kitale at 2240hrs and arrived at 0230hrs the next day tow did the journey take. 3mks

Time = 2400 − 2240 + 0230

Time = 3hrs 50min.

b. If the distance between kitale and Nairobi is 250km find the average speed of the car. 3mks

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

$S = \frac{250\ km}{3\frac{50}{60}\ hr}$

$S = 250 \times \frac{6}{23}$ km/hr.

$= 65.2$ km/hr.

10. Solve the following equation .3mks

$\frac{x+2}{3} - \frac{x-4}{4} = \frac{5}{12}$

$\frac{4(x+2) - 3(x-4)}{12} = \frac{5}{12}$

$\frac{4x+8-3x+12}{12} = \frac{5}{12}$

$\frac{x+20}{12} = \frac{5}{12}$

$12x + 240 = 60$

$12x = 60 - 240$

$\frac{12x}{12} = \frac{-180}{12}$

$x = -15$

11. Solve the following simultaneous equation. 3mks

$2k + m = 7$ ... 2

$3k + 2m = 10$ ... 1

$4k + 2m = 14$

$3k + 2m = 10$ −

$K = 4$

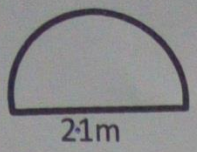
$m = 7 - 2k$

$= 7 - 2 \times 4$

$= 7 - 8$

$= -1$

12. The diagram below represents a flowerbed. Calculate the perimeter of the flower bed.3mks



$P = \frac{1}{2}\pi D + r$

$= \frac{22}{7} \times 2.1 + 2.1$

$P = 6.6 + 2.1$

$= 8.7\ m.$

13. A school water tank has a radius of 3.5 m and a height of 2m.

a) Calculate the capacity of the tank in litres when the tank is full. 4mks

$V = \pi r^2 h$

$= \frac{22}{7} \times 3.5 \times 3.5 \times 2m$

$= 77\ m^3$

$1m^3 = 1000\ L.$

$77m^3 = x$

$x = 77 \times 1000\ L.$

$= 77000\ L.$

b) If the school uses 5000 litres of water in a day, how many days will the full tank last? 3mks

$\text{No. day} = \frac{77000}{5000}$

$= 15.4\ \text{days}$

c) The cost of water is Sh 200 per a 1000litres of water. How much money does the school pay for one full tank. 3mks

$1000L = 200\ Sh$

$1L = \frac{200}{1000}$

$77000 \Rightarrow \frac{200}{1000} \times 77000$

$= 15,400$

14. The table below shows a travel - time table for a vehicle operating between town A and D. the distance between town A and D is 150 km

town	Arrival	Departure
A		10:00 am
B	10:20am	10:30 am
C	11:30 am	11:15 am
D	2:30pm	

a) At what time does the vehicle depart from town A.1mks

10:00 am

b) How long does the vehicle take to travel from town A to town B.? 2mks

$10:20\ am - 10:00\ am = 20$

Time = 20 minutes

c) How long did it stay in town B. 2mks

$10:30\ am - 10:20\ am = 10$

T = 10 minutes

d) What time does the vehicle arrive in town D. 1mks

2:30 pm

e) Calculate the average speed for the whole journey. 4mks

Time = 12:00

$S = \frac{150\ km}{}$