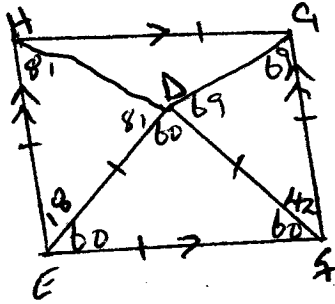


Name MARK W. SCHEMÉ ADM CLASS II

INSTRUCTIONS.

Answer all the questions showing all your workings below each question.

1. EFGH IS A RHOMBUS AND TRIANGLE DEF is equilateral. Calculate $\angle HDG$ given that $\angle HED = 18^\circ$



$$\begin{array}{r} 180 \\ - 78 \\ \hline 102 \end{array}$$

$$\begin{array}{r} 180 \\ - 42 \\ \hline 138 \\ \hline 2 \end{array}$$

$$\frac{162}{2} = 81$$

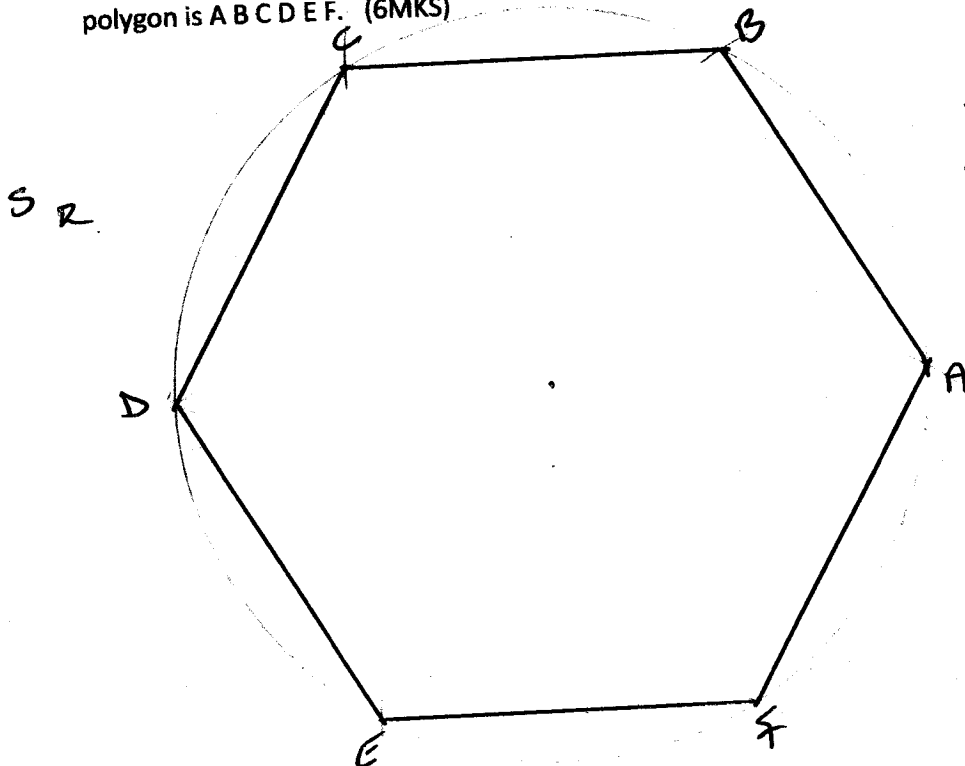
$$81 + 69 + 60 = 210$$

$$\frac{360}{- 210} = 150$$

$$\angle HDG = 150$$

(3 MKS)

2. Draw a circle of radius 5cm. mark off point A,B,C,D,E and F on the circumference of the circle such that $AB=BC=CD=DE=EF=FA=5\text{CM}$. Measure $\angle BCD$, $\angle ABC$ and $\angle CDE$. What type of polygon is A B C D E F. (6MKS)



$$\angle ABC = 120^\circ \checkmark$$

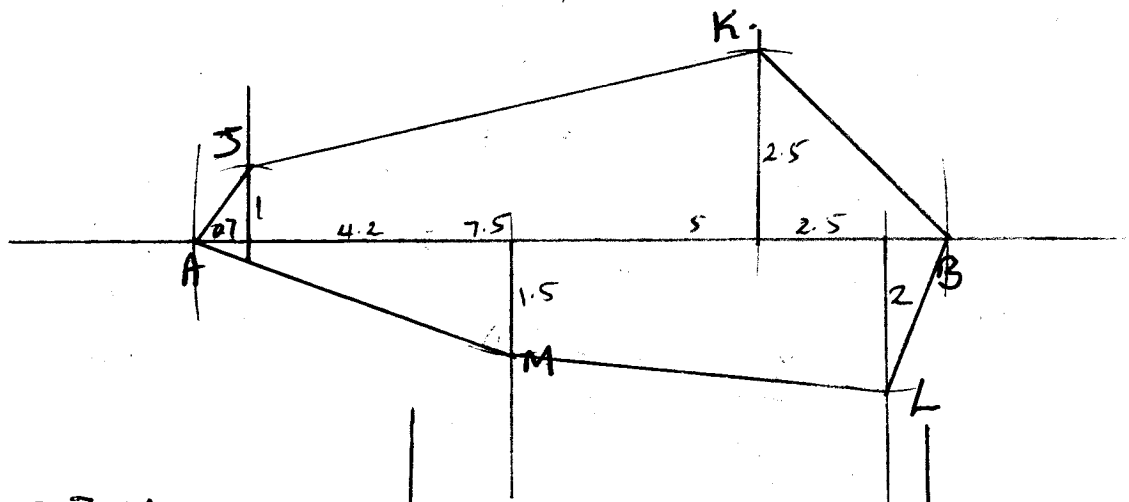
$$\angle BCD = 120^\circ \checkmark$$

$$\angle CDE = 120^\circ \checkmark$$

3. Use a scale of 1cm to 60m to draw the map of the farm whose measurement are shown in the field book below with a base line AB = 600m.

	B	
	550	120 to L
To K 150	450	
	250	90 to M
To J 60	40	
	A	

II Calculate its area in hectares. (10mks)



$$\begin{aligned}
 A &= \frac{1}{2} \times 0.7 \times 1 = 0.35 \\
 &\frac{1}{2} (1+2.5) \times 6.8 = 11.9 \\
 &\frac{1}{2} \times 2.5 \times 2.5 = 3.125 \\
 &\frac{1}{2} \times 4.2 \times 1.5 = 3.15 \\
 &\frac{1}{2} (1.5+2) \times 5 = 8.75 \\
 &\frac{1}{2} \times 0.8 \times 2 = 0.8 \\
 &\hline
 &28.075 \text{ cm}^2
 \end{aligned}$$

$$\begin{array}{r}
 28.075 \times 60 \times 60 \\
 \hline
 10,000
 \end{array}$$

$$\begin{array}{r}
 101,070 \\
 \hline
 10,000
 \end{array}$$

$$\begin{array}{r}
 = 10.107 \text{ hac} \\
 \hline
 \hline
 \end{array}$$

4. Use reciprocal tables to work out

i. $\frac{17}{0.051} + \frac{3}{0.0027}$

(3MKS)

$$17 \times \frac{1}{0.051} + 3 \times \frac{1}{0.0027}$$

$$17 \times \frac{10^2}{5.1} + 3 \times \frac{10^3}{2.7}$$

$$333.33 + 1428.57$$

$$\underline{\underline{1,761.9}}$$

ii. $\frac{4}{0.375} - \frac{5}{37.5}$

(4MKS)

$$4 \times \frac{1}{0.375} - 5 \times \frac{1}{37.5}$$

~~4x~~

$$10.67 - 0.13$$

$$\underline{\underline{10.54}}$$

5. Simplify

a) $\sqrt[5]{32y^{10}k^{15}z^{10}}$

$$\sqrt[4]{16y^{12}k^{16}z^4} \quad (4\text{mks})$$

$$\frac{(2^5)^{\frac{1}{5}} \times (y^{10})^{\frac{1}{5}} \times (k^{15})^{\frac{1}{5}} \times (z^{10})^{\frac{1}{5}}}{(2^4)^{\frac{1}{4}} \times (y^{12})^{\frac{1}{4}} \times (k^{16})^{\frac{1}{4}} \times (z^4)^{\frac{1}{4}}}$$

$$\frac{z}{y k}$$

$$\frac{2 \times y^2 \times k^3 \times z^2}{2 \times y^3 \times k^4 \times z}$$

$$y^{(2-3)} \times k^{(3-4)} \times z^{(2-1)}$$

$$y^{-1} \times k^{-1} \times z^1$$

$$b) \frac{r^{2.3} \times s^{4.5} t^{6} \times r^{7.8} s^{9}}{r^{10} s^{11} t^{12} \times r^{13} s^{14} t^{15}}$$

$$\frac{r^{(1+4+7)} \times s^{(2+5+8)} \times t^{(3+6+9)}}{r^{(10+13)} \times s^{(11+14)} \times t^{(12+15)}}$$

$$\frac{r^{12} \times s^{15} \times t^{-12}}{r^{23} \times s^{-3} \times t^3}$$

$$c) x^2 y^2 \times x^2 y^5 \times x^3 y^9$$

$$(2+2+3) \quad (2+5+9)$$

$$x^7 \times y^{16}$$

$$\underline{x^7 y^{-2}}$$

$$\frac{x}{y^2}$$

(3mks)

$$r^{(12-23)} \times s^{(15-3)} \times t^{(-12-3)}$$

(4mks)

$$\underline{r^{-11} s^{18} t^{-15}}$$

$$\frac{s^{18}}{r^{11} t^{15}}$$

6. Use the tables to evaluate.

$$\sqrt[3]{\frac{1.794 \times 0.038}{12.43}}$$

No	S. J	LOG
1.794	1.794×10^0	0.2538
0.038	3.8×10^{-2}	$\bar{2}.5998$
		$\bar{2}.8536$
12.43	1.243×10^1	$\bar{1}.0945$
		$\bar{3}.7591$

$$\bar{3}.7591 \times 1$$

$$-1.2530$$

$$10^{-1} \times 1.791$$

$$= \underline{0.1791}$$

(5mks)

II

$$\sqrt[4]{\frac{6978 \times 25.1}{132.7}}$$

NO	S. J	Log
6978	6.978×10^3	3.8437
25.1	2.51×10^1	1.3996
		<u>5.2437</u>
132.7	1.327×10^2	2.1229
		<u>3.1207</u>

(5MKS)

$$\begin{aligned} & \frac{3.1207 \times 1}{4} \\ & = 0.7801 \\ & = \underline{\underline{6.028}} \end{aligned}$$

III.

$$\frac{34.53 \times 361.6}{343.7 \times 615.8}$$

NO	S. J	Log
34.53	3.453×10^1	1.5382
361.6	3.616×10^2	2.5582
		<u>4.0964</u>
343.7	3.437×10^2	2.5362
615.8	6.158×10^2	2.7894
		<u>5.3256</u>

(5MKS)

$$\begin{aligned} & 4.0964 \\ & - 5.3256 \\ & \hline & 2.7708 \\ & 10^{-2} \times 5.8993 \\ & \approx \underline{\underline{0.058993}} \end{aligned}$$

IV)

$$7.312 \times 49.45 \times 157.2$$

NO	S. J	Log
7.312	7.312×10^0	0.8640
49.45	4.947×10^1	1.6943
157.2	1.572×10^2	2.1965
		<u>4.7548</u>

(4MKS)

$$10^4 \times 5.6859$$

$$\underline{\underline{56,859}}$$

V) $6380 \div 2137$ (3mks)

ND	S.J	LOG
6380	6.38×10^3	3.8048
2137	2.137×10^3	3.3298
		<u>0.4750</u>

$10^0 \times 2.9854$
2.985

7. Find the number whose logarithm to base 10 is.

a) $\bar{2}.3927$

(2MKS)

$$10^{-2} \times 2.47 = 0.0247$$

b) 3.8938

(2mks)

$$10^3 \times 7.831 = \underline{7831}$$

c) $\bar{1}.2482 \Rightarrow 10^{-1} \times 1.771$ (2mks)

$$0.1771$$

8 Divide the following logarithms by I2, II3, III4

a) $\bar{2}.9754$ (3mks)

$$\frac{\bar{2}.9754}{2} = \underline{1.4877}$$

$$\bar{2}.9754 \times \frac{1}{4}$$

$$\frac{\bar{4} + 2.9754}{4}$$

$$= \underline{-1.7439}$$

$$\bar{2}.9754 \times \frac{1}{3}$$

$$\frac{\bar{3} + 1.9754}{3}$$

$$= \underline{1.6585}$$

b) 2.1644 (2mks)

$$\begin{array}{r} \underline{2.1644} \\ 2 \quad 1.0822 \end{array}$$

$$\begin{array}{r} \underline{2.1644} \\ 3 \quad 0.7215 \end{array}$$

$$\begin{array}{r} \underline{2.1644} \\ 4 \quad 0.5411 \end{array}$$

c) 3.6946 (3mks)

$$\begin{array}{r} \underline{3.6946} \\ 2 \quad \underline{441.6946} \\ 2 \quad \underline{2.8473} \end{array}$$

$$\begin{array}{r} \underline{3.6946} \\ 3 \quad \underline{1.2315} \end{array}$$

$$\begin{array}{r} \underline{3.6946} \\ 4 \quad \underline{441.6946} \\ 4 \quad \underline{1.4237} \end{array}$$

...END...