STANDARD HIGH SCHOOL ZZANA

PHYSICS PAPER 3 EXERCISES FOR S6

OBJECTIVES

1. **Construct are suitable table.**
2. **Complete the table with correct significant figures (s.f) and decimal places (d.p).**
3. **Plot graphs**

   NB ; Use a graph book to answer the questions below that will be part of pre registration assessment .

No. 1

Given that the values of **α** (°), **β** (°) and **x** (cm) are experimental values.

w =6.50cm.

α (°)	**β (°)**	**x(cm)**
20	13	1.5
30	20	2.3
40	25	2.9
50	31	3.8
60	35	4.4
70	40	5.2

(i) Construct a suitable table of result including values of, $\sin^2 \boldsymbol{\alpha}$ and $\left(\frac{x\cos\beta}{w}\right)^2$

(ii) Plot a graph of $\sin^2 \boldsymbol{\alpha}$ against $\left(\frac{x\cos\beta}{w}\right)^2$.

(iii) Find the slope **S** of the graph.

(iv) Evaluate **n** from the expression **n**= $\sqrt{s}$

No.2

Given that the values of **i** (^{o}) and **s** (cm) are experimental values.

d=5.1cm, **t**= **(d - $\sqrt{2}$)** and **m= (d$\sqrt{2}$) - 1**.

i(^{o})	s(cm)
15	1.6
20	1.2
25	1.0
30	0.6
40	0.3

(i) Construct a suitable table of result including values of: $\sin^2$**i** and

$$y = \frac{(s-t)^2}{m^2 + (s\sqrt{2} + 1)^2}$$

(ii) Plot a graph of $\sin^2$**i** against **y**

(iii) Find the slope **S** of the graph.

(Iv) Evaluate **n** from the expression **n=$\sqrt{}$ S**

No. 3

Given that the values of **i (°), d (°)** and **e (°)** are experimental values.

i(°)	**d(°)**	**e(°)**
30	48	78
40	43	62
50	38	47
60	41	40
65	43	37
70	45	33

i) Construct a suitable table of result including values of **(d-e) (°)**

ii) Plot a graph of **d** against **i** and use it to determine the angle of minimum deviation **m**

iii) Plot a graph of **(d-e)** against **i** and read off the intercept **c** on the i-axis.

iv) Calculate for **n** using the equation.

$$n = \frac{\sin \frac{1}{2}(m+c)}{\sin \frac{1}{2}c}$$

No.4

Given that the values of **h (cm)** and **β (°)** are experimental values.

h (cm)	**β(°)**
1.5	30
3.0	50
4.5	70
6.0	90
7.5	110
9.0	130

(i) Construct a suitable table of result including values of: $\mathbf{h^2}$, sin **β** and $\frac{\mathbf{h}}{\mathbf{h^2+36}}$

(ii) Plot a graph of sin **β** **against** $\frac{\mathbf{h}}{\mathbf{h^2+36}}$

(iii) Find the slope **S** of the graph.

No. 5

Given that the values of **L_1(m), L_2 = 0.150m , d(m), t(s)** are experimental values.

T(s) $= \frac{t}{20}$

d(m)	**L_1(m)**	**t(s)**	**2β(^{o})**
0.900	1.100	28.15	110
0.700	0.900	27.37	100
0.600	0.800	26.94	94
0.500	0.700	25.88	90
0.400	0.600	24.78	82
0.300	0.500	23.25	74

i) Construct a suitable table of results including values of **:T^2 and $(L_1 \cos\beta + 2L_2)$**

ii) Plot a graph of **T^2** against **$(L_1 \cos\beta + 2L_2)$**

iii) Read off the intercept **c** on the x-axis.

iv) Determine the slope **S** of graph.

v) Calculate g from the express

$$S = \frac{2\pi^2}{g}$$

No. 6

.Copy and complete the table below. Take l=0.500m

x(m)	x^2(m²)	y(cm)	y(m)	xy(m²)	$\frac{x}{y}$	$\frac{xl}{y}$
0.05		26.1				
0.10		31.0				
0.15		38.0				
0.20		45.0				
0.25		53.2				
0.30		62.0				

No. 7 .Copy and complete the table below.

i(^{0})	r(^{0})	x(cm)	l(cm)	sin i	Cos r	xcos r(cm)
10	6	0.8	7.0			
20	14	1.6	7.2			
30	20	2.4	7.4			
40	28	3.5	7.8			
50	30	4.0	8.1			
60	35	4.8	8.5			

No. 7 .Copy and complete the table below. Take E=3.00V

y(m)	V(V)	$I(A)$	$\frac{1}{V}$V^{-1}	$\frac{1}{I}$A^{-1}	$\frac{1}{y}$(m^{-1})	$\frac{V}{I}\Omega$	$\frac{E}{V}$
0.200	0.50	0.40					
0.300	0.60	0.36					
0.400	0.70	0.32					
0.500	0.80	0.28					
0.600	1.00	0.24					
0.700	1.10	0.20					

No. 8 .Copy and complete the table below. Take f_1=6.0cm

x(cm)	(x+f_1)(cm)	z(cm)	(z-f_1)(cm)	$\frac{(x+f1)}{(z-f1)}$	$\frac{1}{x}$(cm^{-1})	(x+f_1)x(z-f_1)(cm^2)
10.0		12.3				
15.0		10.6				
20.0		9.6				
25.0		8.6				
30.0		8.3				
35.0		8.2				

No. 9. Given that the values of f_o(cm), x_1(cm) and x_2 (cm) are experimental values, all measured using a meter rule. Complete the table of results values of (l^2-d^2): where

d=(x_2-x_1) and f_o=10.0cm.

l(cm)	x 1(cm)	x 2(cm)
6.5f_o	52.0	8.8
6.0f_o	46.6	9.2
5.5f_o	41.1	10.0
5.0f_o	36.2	11.0
4.5f_o	30.0	11.9
4.0f_o	24.9	13.0

END