



Physics Lab 211

Experiment No. 1

Newton's Laws of Motion

Name: Laith Marzouka

ID: 1160827

Partners: Ahmed Awawda

ID: 1163113

Lamia' Abu Awwad

ID: 1150993

Advisor: Dr. Areej Abdel Rahman

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Data Sheet:

<i>No.</i>	<i>E</i> <i>(dynes)</i>	<i>R</i> <i>(dynes)</i>	<i>Q</i> <i>(dynes)</i>	θ_1	θ_2
1	80000	50000	50000	37	35
2	120000	100000	70000	35	54

$R\cos(\theta_1) + Q\cos(\theta_2)$	$R\sin(\theta_1) - Q\sin(\theta_2)$	U_1	U_2
80889	1412	1412	889
123060	726	726	3060

Calculations:

First Graph:

$$R\cos(\theta_1) + Q\cos(\theta_2) = (50000 \times \cos(37^\circ)) + (50000 \times \cos(35^\circ)) = 80889 \text{ dynes}$$

$$R\sin(\theta_1) - Q\sin(\theta_2) = (50000 \times \sin(37^\circ)) - (50000 \times \sin(35^\circ)) = 1412 \text{ dynes}$$

$$U_1 = R\sin(\theta_1) - Q\sin(\theta_2) = 1412 \text{ dynes}$$

$$U_2 = E_{meas} - |[R\cos(\theta_1) + Q\cos(\theta_2)]| = |80000 - 80889| = 889 \text{ dynes}$$

Second Graph:

$$R\cos(\theta_1) + Q\cos(\theta_2) = (100000 \times \cos(35^\circ)) + (70000 \times \cos(54^\circ)) = 123060 \text{ dynes}$$

$$R\sin(\theta_1) - Q\sin(\theta_2) = (100000 \times \sin(35^\circ)) - (70000 \times \sin(54^\circ)) = 726 \text{ dynes}$$

$$U_1 = R\sin(\theta_1) - Q\sin(\theta_2) = 726 \text{ dynes}$$

$$U_2 = E_{meas} - |[R\cos(\theta_1) + Q\cos(\theta_2)]| = |120000 - 123060| = 3060 \text{ dynes}$$

Result & Conclusion:

1) $U_1 = 1412 \text{ dynes}, U_2 = 889 \text{ dynes}$

2) $U_1 = 726 \text{ dynes}, U_2 = 3060 \text{ dynes}$

3) $T_1 =, T_2 =$