Student Name-Surname: .....

Grade:……

Experiment 2

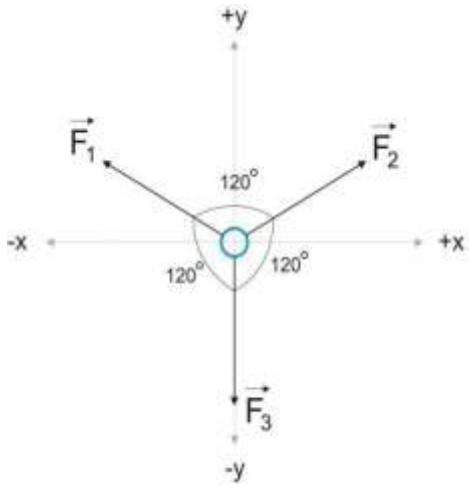
Vectors on a Force Table

The Aim of Experiment:

Measurements and Results:

PART I:

Calculate the equilibrium state by determining the components of the forces by using Equation 6.



$|\vec{F_1}| = |\vec{F_2}| = |\vec{F_3}| =$.....

$F_{1_x} =$.....

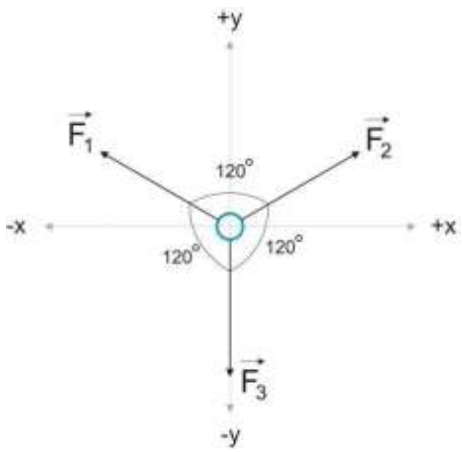
$F_{2_x} =$.....

$F_{3_x} =$.....

$F_{1_y} =$.....

$F_{2_y} =$.....

$F_{3_y} =$.....



PART II:

1) **Set the three angles α, θ, β , keep the balance by adding masses to ropes**. (Make sure that the ring doesn't touch with center point). Then fill the Table 1 by calculating the Forces in Newtons (N).
2) **Draw the Forces acting on the ring and show each three angles on a millimetric paper as shown in Figure 3 (handout).** Specify the x- and y-axis components of each Forces, F_1, F_2, F_3.
3) **Calculate all the x and y components for each Forces at the equilibrium.** Write your results. Show your two calculations.

Table 1

Pulley 1, α (90º)		Pulley 2, θ (240º)		Pulley 3, β(0º)	
F_1 (N)	Additional masses(g)	F_2 (N)	Additional masses(g)	F_3 (N)	Additional masses(g)

F_{1_x} =.....
F_{2_x} =.....
F_{3_x} =.....
F_{1_y} =.....
F_{2_y} =.....
F_{3_y} =.....

PART III:

1) **Find the new equilibrium positions and angles according to the additional masses** (T.A will add). Fill the Table 2 and calculate the components of each Forces, F_1, F_2, F_3.

Table 2

Pulley 1		Pulley 2		Pulley 3	
F_1 (N)	α (º)	F_2 (N)	θ (º)	F_3 (N)	β(º)

2) **Draw the forces acting on the ring on a millimetric paper (graph sheet) of paper as shown in Figure 3.**

3) **Calculate the equilibrium by using the Equation 6. Write your results and your two calculation.**

$F_{1_x} = \ldots\ldots$
$F_{2_x} = \ldots\ldots$
$F_{3_x} = \ldots\ldots$
$F_{1_y} = \ldots\ldots$
$F_{2_y} = \ldots\ldots$
$F_{3_y} = \ldots\ldots$

Conclusion: