***Sidi Gaber Language School- Girls*** *Senior (2)*

***S.L.S*** *(Girls) Mechanics*

*Name :* ………….………………….………….. *Class :* ……………………………

*Sheet* [4]

Finding the resultant of two forces meeting at a point analytically

B

C

A

O

Let and two forces meet at O

is the measure angle of between

is the measure angle of between

is the resultant of the two forces

,

,

where and R are the magnitudes of and

B

C

A

O

**Example:**

Two forces of magnitudes 10 newton and 6 newton act at a point and include an angle of measure 60. Find their resultant in magnitude and direction analytically.

newton →magnitude

angle between

**Special cases:**

1. If the two forces are perpendicular

1. If the 2 forces are equal in magnitude

B

C

A

O

**Note:** If , then R = F

1. If the two forces have the same line of action and the same direction :

*(max value)*

\* R has the same direction of the line of action of the 2 forces.

0

•

1. If the two forces have the same line of action but in opposite direction :

*(min. value)*

\* R has the direction of the greater force in magnitude.

0

•

1. If the two forces an equal in magnitude and have the same line of actions but in opposite direction :

zero ( is a zero vector)

1. If the resultant is perpendicular to the first force:

Using Pythagoras in