

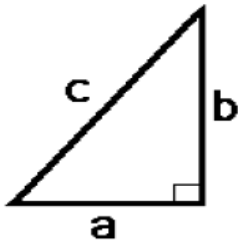

SUVA SANGAM COLLEGE

YEAR 11

PHYSICS

WORKSHEET 4

STRAND 1 MECHANICS

NO.	<p><b>CONCEPT IN BRIEF: VECTORS</b> <b>THE PYTHAGOREAN THEOREM</b></p>  $a^2 + b^2 = c^2$
1	<p>Let <math>A = 5 \text{ km } \uparrow</math>, <math>B = 10 \text{ km } \leftarrow</math>, <math>C = 4 \text{ km } \rightarrow</math> and <math>D = 8 \text{ km } \downarrow</math> Calculate</p> <ul style="list-style-type: none"><li>(i) <math>A + B</math></li><li>(ii) <math>B - D</math></li><li>(iii) <math>C - A</math></li></ul>
	<p><b>CONCEPT IN BRIEF: VECTORS</b> <b>MULTIPLYING A VECTOR WITH A SCALAR</b></p> <p>When we multiply a vector with a scalar quantity, if the scalar is positive than we just multiply the scalar with the magnitude of the vector. But, if the scalar is negative then we must change the direction of the vector. Example given below shows the details of multiplication of vectors with scalar.</p> <p><b>Example:</b> Find <math>2A</math>, <math>-2A</math> and <math>1/2A</math> from the given vector <math>A</math>.</p> 

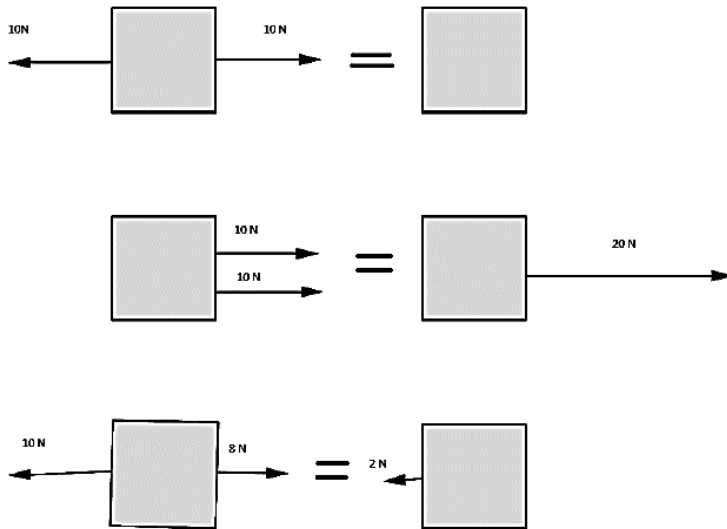
2.	<p>Let <math>A = 5 \text{ km } \uparrow</math>, <math>B = 10 \text{ km } \leftarrow</math>, <math>C = 4 \text{ km } \rightarrow</math> and <math>D = 8 \text{ km } \downarrow</math></p> <p>Calculate</p> <p>(i) <math>2A + B</math></p> <p>(ii) <math>3B - 2D</math></p> <p>(iii) <math>5C - 3A</math></p>
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### CONCEPT IN BRIEF: FORCES

#### UNBALANCE FORCE

We called unbalanced force “**net force**” or resultant force also. As you can see from the picture:

- If the forces acting on an object are in the same direction they are added.
- If they are opposite direction we take one of them in negative direction and make calculations considering their signs and find resultant force vector.



3	<p>Calculate the unbalanced force in the following:</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>(i)</p> </div> <div style="text-align: center;"> <p>(ii)</p> </div> <div style="text-align: center;"> <p>(iii)</p> </div> </div>
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