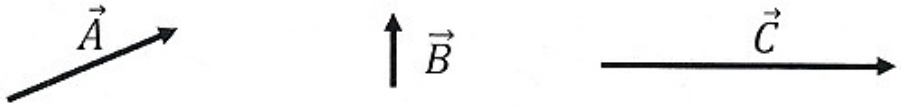
Group Exercises: Vectors

Exercise 1:



Find the following resultant ($\vec{R}$) vectors:

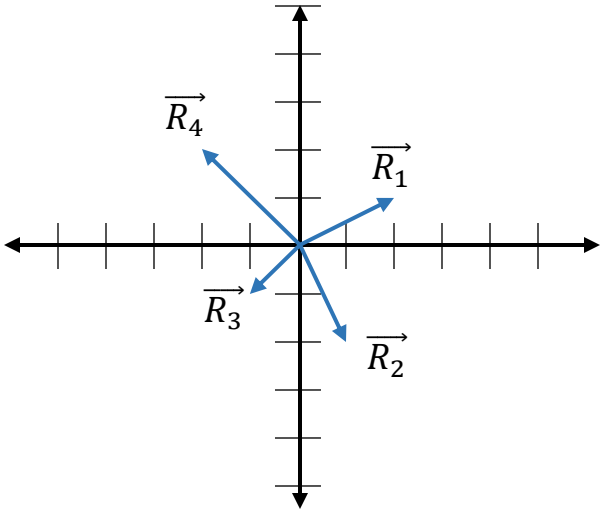
$\vec{A} + \vec{B}$

$\vec{B} + \vec{C}$

$\vec{A} - \vec{C}$

$2\vec{A} + \vec{B} - \vec{C}$

Exercise 2:



Find the *components* of the vectors below:

$\overrightarrow{\boldsymbol{R_1}}$

$\overrightarrow{\boldsymbol{R_2}}$

$\overrightarrow{\boldsymbol{R_3}}$

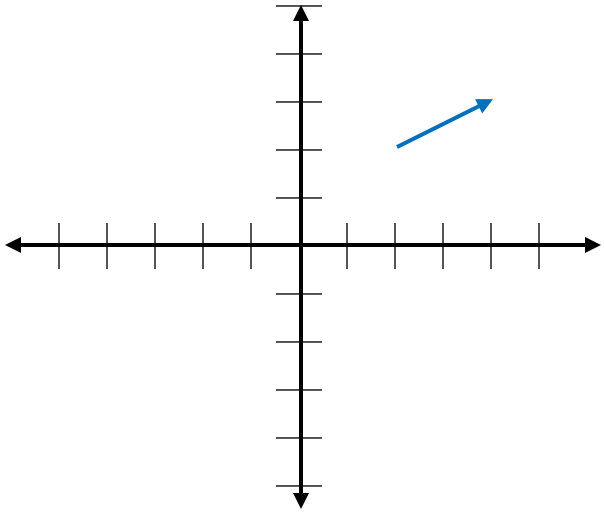
$\overrightarrow{\boldsymbol{R_4}}$

$\overrightarrow{\boldsymbol{R_1}} + \overrightarrow{\boldsymbol{R_2}}$

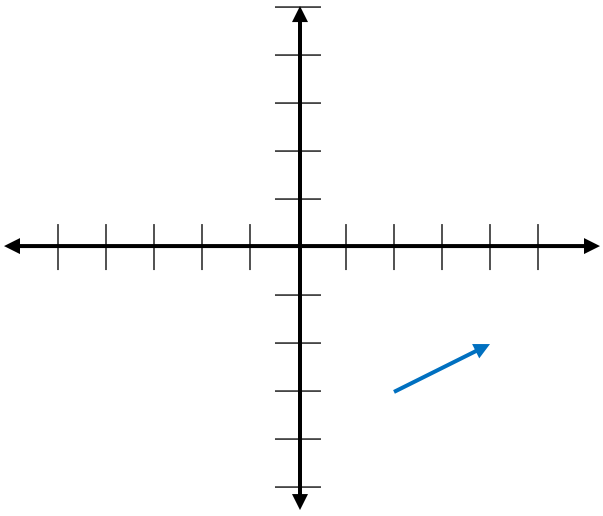
$\overrightarrow{\boldsymbol{R_4}} + 2\overrightarrow{\boldsymbol{R_3}}$

Exercise 3:

A vector is shown below. Discuss the components with your group, and write them here. Explain why you chose what you did.



Discuss the new vector shown below, and write the components here. Explain why you chose what you did.



Exercise 4:

Write the directions (angles) for the vectors shown in Exercise 2:

$\overrightarrow{\boldsymbol{R}_1}$

$\overrightarrow{\boldsymbol{R}_2}$

$\overrightarrow{\boldsymbol{R}_3}$

Exercise 5:

To decompose a vector means:

a) To break it into smaller vectors
b) To break it into scalars (magnitudes only)
c) To break it into vectors parallel to the axes
d) To place it at the origin

Define “axes” here:

What are the components of $\vec{B}$ parallel to and perpendicular to the surface shown? The magnitude of $|\vec{B}|$ is 4 units.