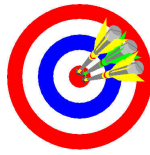


Vector Addition (6.2)

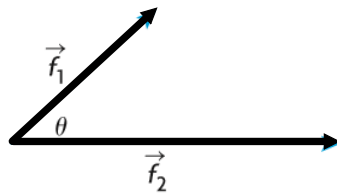
Math Learning Target:



"I can geometrically and algebraically construct the addition (and subtraction) of any two vectors using the Parallelogram and Triangle Laws of Addition. I can calculate the magnitude of any vector, and state its direction as a true bearing and quadrant bearing."

vector diagram

A detailed sketch of all vector quantities involved in a situation is a **vector diagram**.



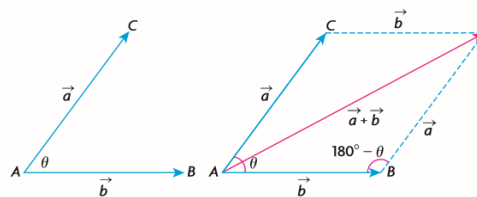
Example of a vector diagram associated with the system diagram from MINDS ON!

resultant

The sum of two or more vectors is the **resultant** of the two vectors.

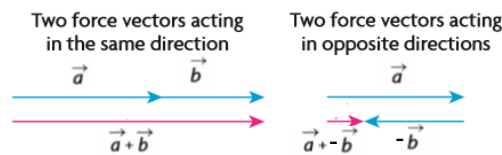
For vectors neither in the same nor opposite directions to each other

The Parallelogram Law for Adding Two Vectors



To determine the sum of the two vectors \vec{a} and \vec{b} , complete the parallelogram formed by these two vectors when placed tail to tail. Their sum is the vector \vec{AD} , the diagonal of the constructed parallelogram.
 $\vec{a} + \vec{b} = \vec{AB} + \vec{BD} = \vec{AD}$. Note: the angle between any two vectors is calculated as placed TAIL-to-TAIL.

But what if the vectors act in the same, or opposite directions to each other?



Triangle Inequality
(without proof)

