4.2 Vector Addition

4.2 I can add and subtract vectors graphically.

4.3 I can add and subtract vectors using the component method.

Every vector can be broken into 2 components.

**2 Methods of Adding Vectors**

1. **Graphical Method**
   - Head-to-Tail Addition

2. **Component Method**

**Graphical Method: Head-to-Tail Addition**

Adding vectors graphically: Place the tail of the second at the head of the first. The sum points from the tail of the first to the head of the last.

**Component Method**

Adding Vectors Using Components:
1. Find the components of each vector to be added.
2. Add the x- and y-components separately.
3. Find the resultant vector.
### Example 2: Vector Addition

You drive a car 1200 ft to the south, then 1370 ft to the west. What is the magnitude and direction of your displacement?

**THE COMPONENTS OF A VECTOR**

You drive a car 1200 ft to the south, then 1370 ft to the west. What is the magnitude and direction of your displacement?

\[
\begin{align*}
\theta &= \tan^{-1}\left(\frac{1370}{1200}\right) \\
\theta &= 49^\circ \text{ W of S}
\end{align*}
\]

\[
\Delta x = 1800 \text{ ft} @ 49^\circ \text{ W of S}
\]

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### HOMEWORK

- Worksheet
- Unit 4 Problems (1-4)