Some useful things to know about vectors

Definition: <u>unit vectors</u> are vectors with a magnitude of one unit

There are special unit vectors that point off in the x, y and z directions.

- $\hat{i} = <1, 0, 0>$

- $\hat{j} = <0, 1, 0>$

- $\hat{k} = <0, 0, 1>$

Vectors have two notations

1. Component form: $\vec{A} = <a, b, c>$

2. Unit vector notation: $\vec{A} = a\hat{i} + b\hat{j} + c\hat{k}$

We can add vectors component by component
$$\vec{A} + \vec{B} = <a_1, b_1, c_1> + <a_2, b_2, c_2> = <a_1 + a_2, b_1 + b_2, c_1 + c_2>$$
The same for subtraction
$$\vec{A} - \vec{B} = <a_1, b_1, c_1> - <a_2, b_2, c_2> = <a_1 - a_2, b_1 - b_2, c_1 - c_2>$$