Problem #2 of Quiz #01 is due tomorrow @ beginning of class.

§13.2: VECTORS.

Mult. of a vector by a scalar, \( c \).

\[
\langle c_1, c_2, c_3 \rangle = \langle ca_1, ca_2, ca_3 \rangle
\]

**Example.**

\[
\frac{1}{2} \langle 2, 4, 7 \rangle = \langle 1, 2, \frac{7}{2} \rangle
\]

IV. UNIT VECTOR.

**Example.**

\[
\hat{a} = \langle 2, 1, 8 \rangle
\]

\[
\| \hat{a} \| = \sqrt{4+1+64} = \sqrt{69}
\]

2. Mult. \( \hat{a} \) by \( \frac{1}{\| \hat{a} \|} \) to get the unit vector.

\[
\hat{u} = \frac{1}{\| \hat{a} \|} \hat{a} = \frac{1}{\sqrt{69}} \langle 2, 1, 8 \rangle = \langle \frac{2}{\sqrt{69}}, \frac{1}{\sqrt{69}}, \frac{8}{\sqrt{69}} \rangle
\]

III. BASIC RULES of VECTORS (p. B37)

\[
\langle a_1, a_2, a_3 \rangle \pm \langle b_1, b_2, b_3 \rangle = \langle a_1 \pm b_1, a_2 \pm b_2, a_3 \pm b_3 \rangle
\]

"component-wise" addition / subtraction.