Consider three vectors $\vec{A}$ and $\vec{B}$ and $\vec{C}$ as shown. You are given the following:

- The length of vector $\vec{A}$ is 5 units and the angle between vector $\vec{A}$ and the $x$-axis is $\theta = 53.1^\circ$. (Note — no calculator needed: $\cos \theta = 0.6$ and $\sin \theta = 0.8$.)
- The length of vector $\vec{B}$ is 3 units and it points along the $-x$-axis.
- Vector $\vec{C}$ has $x$ component $C_x = 2$ units and $y$ component $C_y = 4$ units as shown in the figure.

Calculate the $x$- and $y$- components of the following three vectors, and state which one is longest:

1. $\vec{A} + \vec{B} + \vec{C}$
2. $\vec{A} - \vec{B} + \vec{C}$
3. $\vec{A} + \vec{B} - \vec{C}$