60. (First problem in **Cluster 1**)
The given angle $\theta = 130°$ is assumed to be measured counterclockwise from the $+x$ axis. Angles (if positive) in our results follow the same convention (but if negative are clockwise from $+x$).

(a) With $A = 4.00$, the x-component of $\vec{A}$ is $A\cos\theta = -2.57$.

(b) The y-component of $\vec{A}$ is $A\sin\theta = 3.06$.

(c) Adding $\vec{A}$ and $\vec{B}$ produces a vector we call R with components $R_x = -6.43$ and $R_y = -1.54$. Using Eq. 3-6 (or special functions on a calculator) we present this in magnitude-angle notation: $\vec{R} = (6.61 \angle -167°)$.

(d) From the discussion in the previous part, it is clear that $\vec{R} = -6.43\,\hat{\imath} - 1.54\,\hat{\jmath}$.

(e) The vector $\vec{C}$ is the difference of $\vec{A}$ and $\vec{B}$. In unit-vector notation, this becomes

$$\vec{C} = \vec{A} - \vec{B} = \left(-2.57\,\hat{\imath} - 3.06\,\hat{\jmath}\right) - \left(-3.86\,\hat{\imath} - 4.60\,\hat{\jmath}\right)$$

which yields $\vec{C} = 1.29\,\hat{\imath} + 7.66\,\hat{\jmath}$.

(f) Using Eq. 3-6 (or special functions on a calculator) we present this in magnitude-angle notation: $\vec{C} = (7.77 \angle 80.5°)$.

(g) We note that $\vec{C}$ is the "constant" in all six pictures. Remembering that the negative of a vector simply reverses it, then we see that in form or another, all six pictures express the relation $\vec{C} = \vec{A} - \vec{B}$.