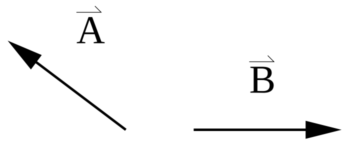
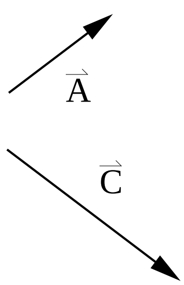
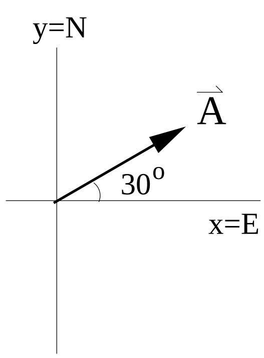
1. Given vectors $\vec{A}$ and $\vec{B}$ below, find the vectors $\vec{A}+\vec{B}$, $\vec{B}+\vec{A}$, $\vec{A}-\vec{B}$, and $\vec{B}-\vec{A}$.

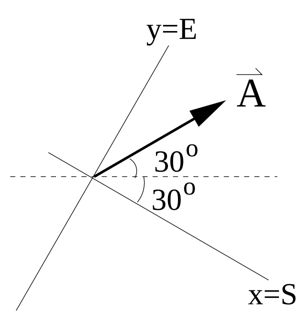


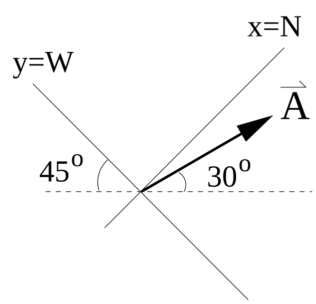
2. Given vectors $\vec{A}$, $\vec{B}$, and $\vec{C}$ below, find the vector $\vec{A}+\vec{B}+\vec{C}$. Use your drawing to show that $(\vec{A}+\vec{B})+\vec{C} = \vec{A}+(\vec{B}+\vec{C})$



3. $\vec{A} = 5$ units @ 30° above right on the page. First draw the components A_x and A_y (with arrowheads) in each coordinate system, then determine the proper expressions.



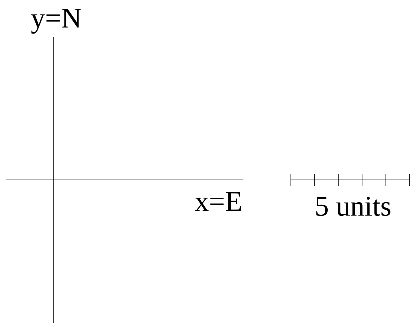




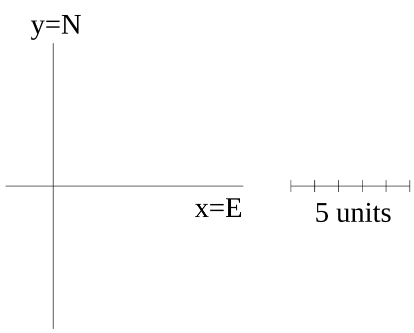
A_x = __________ A_x = __________ A_x = __________

A_y = __________ A_y = __________ A_y = __________

4. $\vec{A} = 5$ units E, and $\vec{B} = 5$ units @ 37° N of E. Given that $\vec{C} = \vec{A} + \vec{B}$, draw the vector triangle and find $\vec{C}$ in unit vector notation and as magnitude and direction.



5. $\vec{A} = 10$ units with unknown direction, $\vec{B} = 4$ units E, and $\vec{C} =$ unknown magnitude with direction 10° E of S. Given that $\vec{C} = \vec{A} + \vec{B}$, draw the vector triangle, and find the direction of $\vec{A}$ and the magnitude of $\vec{C}$. (Use the Law of Sines.)



6. $\vec{A} = 10$ units somewhat S of E but with the actual angle unknown, $\vec{B} = 5$ units with unknown direction, and $\vec{C} = 12$ units E. Given that $\vec{C} = \vec{A} + \vec{B}$, draw the vector triangle, and find the directions of $\vec{A}$ and $\vec{B}$. (Use the Law of Cosines.)