VECTORS

Exercise 1. Is each of the following quantities a vector or a scalar? Explain.
  (1) The current temperature
  (2) The population of the world
  (3) The current in a river

Exercise 2. What is the relationship between the point $(4, 7)$ and the vector $\langle 4, 7 \rangle$?

Exercise 3. If $\vec{u} = \langle -3, 4 \rangle$ and $\vec{v} = \langle 9, -1 \rangle$, find $\vec{u} + 3\vec{v}$, $2\vec{u}$ and $|\vec{u} - \vec{v}|$.

Exercise 4. Find a unit vector that has the same direction as $8\vec{i} + \vec{j} - 4\vec{k}$.

Exercise 5. Find a vector represented by the arrow $\overrightarrow{AB}$, for $A = (-2, 1)$ and $B = (5, 5)$.

Exercise 6. If $\vec{u} = \langle 3, 1, -4 \rangle$ and $\vec{v} = \langle 0, 1, -1 \rangle$, find $\vec{u} - 3\vec{v}$ and $-\vec{u} - \vec{v}$.