Problems: Displacements as vectors

1. You walk a certain distance in a certain direction. Below, draw a displacement vector to represent this. Label this vector $\vec{d}$. For each of the following, draw a relevant displacement vector and label it in relation to $\vec{d}$.
   (a) Your friend walks half as far in the same direction as you.
   (b) Another friend walks twice as far in the opposite direction as you.

2. Draw another copy of the displacement vector $\vec{d}$ below. You continue your journey from Problem 1 by turning right through an angle of 120° and then walking the same distance you went on the first leg. Draw a displacement vector to represent this second leg and label it $\vec{e}$. Draw the vector that represents the displacement between the start and the end of your journey after both legs. Label this vector in terms of $\vec{d}$ and $\vec{e}$.

3. Yet another friend joins you on the first leg of your journey. At the end of the first leg, this friend turns to the left through an angle of 60° and then walks the same distance as the first leg. Draw a displacement vector to represent this second leg and label it in relation to $\vec{d}$ and/or $\vec{e}$. Draw the vector that represents the displacement between the start and the end of this friend's journey after both legs. Label this vector in terms of $\vec{d}$ and $\vec{e}$.