4. We use a coordinate system with $+x$ eastward and $+y$ upward. We note that $123°$ is the angle between the initial position and later position vectors, so that the angle from $+x$ to the later position vector is $40° + 123° = 163°$. In unit-vector notation, the position vectors are

$$\begin{aligned}\vec{r}_1 &= 360\cos(40°)\,\hat{\mathrm{i}} + 360\sin(40°)\,\hat{\mathrm{j}} = 276\,\hat{\mathrm{i}} + 231\,\hat{\mathrm{j}}\\ \vec{r}_2 &= 790\cos(163°)\,\hat{\mathrm{i}} + 790\sin(163°)\,\hat{\mathrm{j}} = -755\,\hat{\mathrm{i}} + 231\,\hat{\mathrm{j}}\end{aligned}$$

respectively (in meters). Consequently, we plug into Eq. 4-3

$$\Delta r = ((-755) - 276)\,\hat{\mathrm{i}} + (231 - 231)\,\hat{\mathrm{j}}$$

and find the displacement vector is horizontal (westward) with a length of 1.03 km. If unit-vector notation is not a priority in this problem, then the computation can be approached in a variety of ways – particularly in view of the fact that a number of vector capable calculators are on the market which reduce this problem to a very few keystrokes (using magnitude-angle notation throughout).