3. Where the unit is not specified, the unit meter is understood. We use Eq. 4-2 and Eq. 4-3.

(a) With the initial position vector as $\vec{r}_1$ and the later vector as $\vec{r}_2$, Eq. 4-3 yields

$$\Delta r = ((-2) - 5)\,\hat{\mathrm{i}} + (6 - (-6))\,\hat{\mathrm{j}} + (2 - 2)\,\hat{\mathrm{k}} = -7.0\,\hat{\mathrm{i}} + 12\,\hat{\mathrm{j}}$$

for the displacement vector in unit-vector notation (in meters).

(b) Since there is no z component (that is, the coefficient of $\hat{\mathrm{k}}$ is zero), the displacement vector is in the xy plane.