4-9 Take the x-axis in direction of initial velocity: $\vec{v}_0 = 14.5\frac{m}{s}\uparrow$
& take y-axis in direction of acceleration: $\vec{a} = 78.2\frac{m}{s^2}\uparrow$

$t = .120s$

(Eq 4-4) $\vec{r} = \vec{r}_0 + \vec{v}_0 t + \frac{1}{2}\vec{a}t^2$

Magnitude of displacement $= |\Delta\vec{r}| = |\vec{r} - \vec{r}_0|$

$$\vec{r} - \vec{r}_0 = \left(14.5\tfrac{m}{s}\uparrow(.120s)\right) + \tfrac{1}{2}\left(78.2\tfrac{m}{s^2}\uparrow\right)(.120s)^2$$
$$= (14.5)(.120)m\uparrow + \tfrac{1}{2}(78.2)(.120)^2 m\uparrow$$
$$= 1.74m\uparrow + .563m\uparrow$$
$$\vec{r} - \vec{r}_0 = (1.74\uparrow + .563\uparrow)m$$

$$|\Delta\vec{r}| = |\vec{r} - \vec{r}_0| = \sqrt{(1.74)^2 + (.563)^2}\, m$$

$$\boxed{|\Delta\vec{r}| = 1.83m}$$

Alternatively solve using component notation.