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This is a 3-D problem involving position.

A particle has the following coordinates:
$x = -4.0\,m$, $y = 7.0\,m$, and $z = 2.0\,m$.

(a) Find the position vector in unit-vector notation.

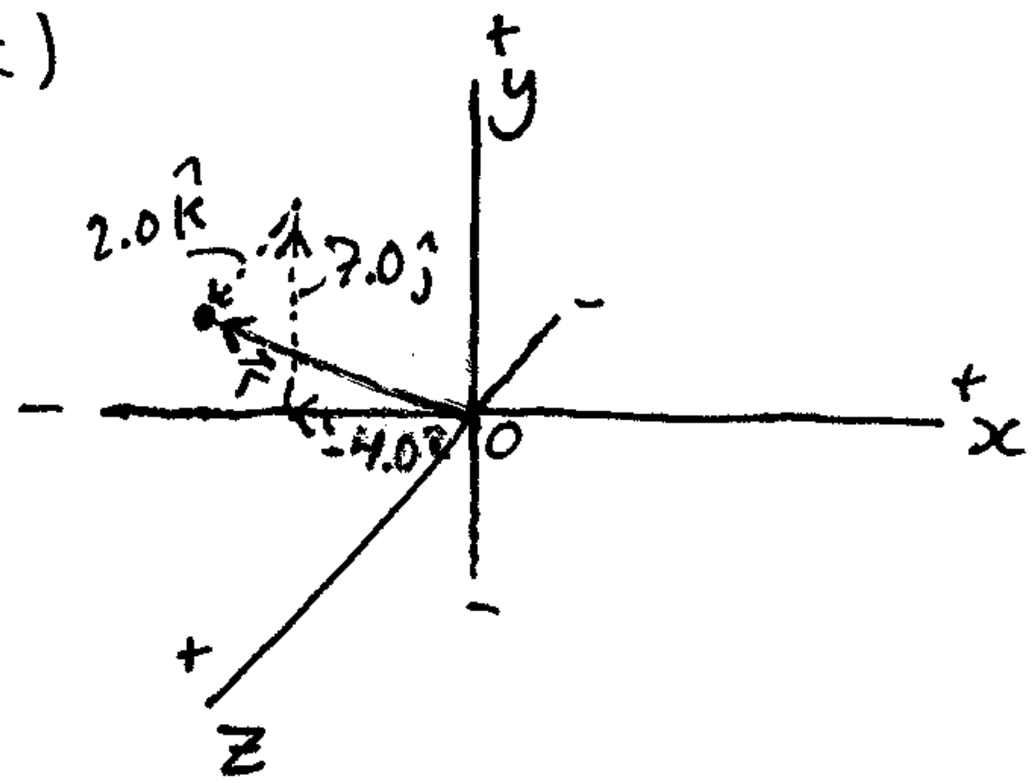
(b) What is the magnitude of this vector?

(c) Sketch the vector on a right-handed coordinate system.

Solution:

(a) $\vec{r} = -4.0\,\hat{i} + 7.0\,\hat{j} + 2.0\,\hat{k}$ (answer) ← units in m

(b) $|\vec{r}| = \sqrt{(-4.0)^2 + (7.0)^2 + (2.0)^2}$

$|\vec{r}| = \sqrt{69}\,m$ (answer)

(c)