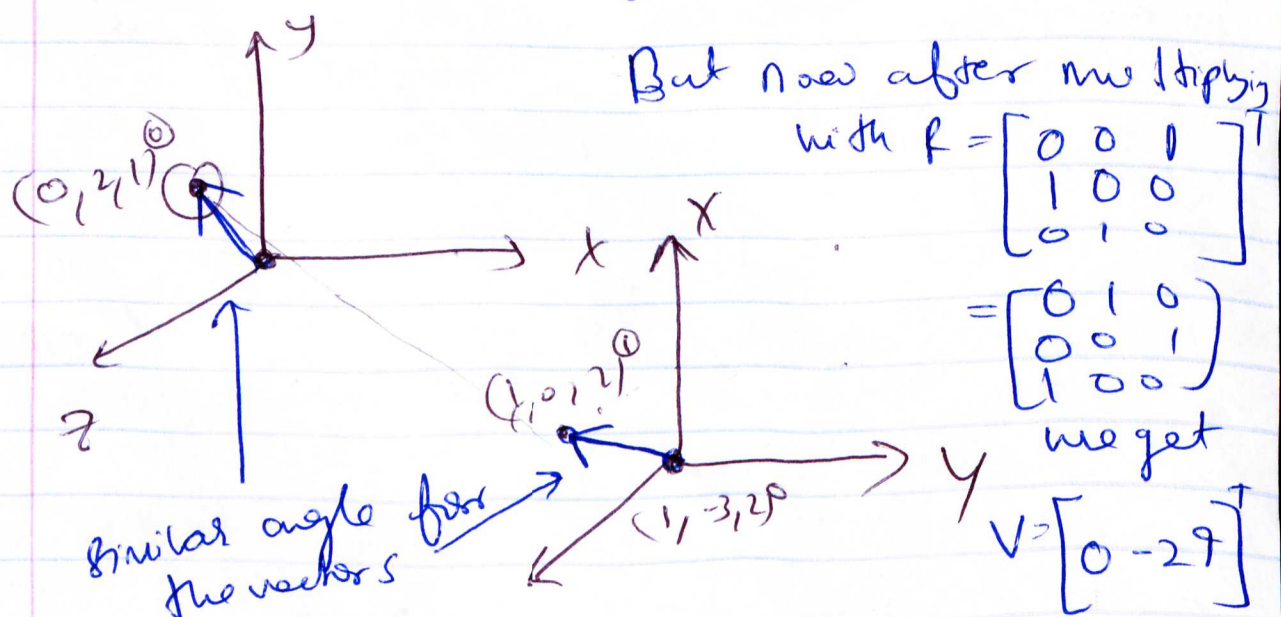This is the velocity of the particle relative to the frame 1.

(b) Let A be the base frame.
Let B be the new frame.

Previously calculated $v = (9 \ 0 \ -2)^T$

But now after multiplying with $R = \begin{bmatrix} 0 & 0 & 1 \\ 1 & 0 & 0 \\ 0 & 1 & 0 \end{bmatrix}^T$

$= \begin{bmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ 1 & 0 & 0 \end{bmatrix}$

we get

$v = \begin{bmatrix} 0 & -2 & 9 \end{bmatrix}^T$

Similar angle for the vectors

old point $(6, 2, 1)$ about the new point would be $(R^0_1)^T P^0 = P^1$

$\Rightarrow P^1 = (1 \ 0 \ 2)^T$

This is the original velocity