QUIZ 4

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1 PROBLEM 1

1. Find the vector and the cartesian equations of the lines that passes through the origin and $\begin{pmatrix} 5 \\ -2 \\ 3 \end{pmatrix}$.

SOLUTION:
Vector equation of a line passing through two points with position **A** and **B** is,

$$\mathbf{r} = \mathbf{A} + \lambda\mathbf{B} \tag{1.0.1}$$

$$\mathbf{A} = \begin{pmatrix} 0 \\ 0 \\ 0 \end{pmatrix} \tag{1.0.2}$$

$$\mathbf{B} = \begin{pmatrix} 5 \\ -2 \\ 3 \end{pmatrix} \tag{1.0.3}$$

$$\mathbf{r} = \begin{pmatrix} 0 \\ 0 \\ 0 \end{pmatrix} + \lambda \begin{pmatrix} 5 \\ -2 \\ 3 \end{pmatrix} \tag{1.0.4}$$

$$= \lambda \begin{pmatrix} 5 \\ -2 \\ 3 \end{pmatrix} \tag{1.0.5}$$