

Math 122-002 201730
Practice Assignment # 10

*Please remember that the assignment consists of only a sample of the kind of questions you are supposed to be able to do. It is **not** a safe practice to just do the assignment, and that is why there is a list of “suggested practice problems”.*

1. Find parametric equations of the following lines. Write also the vector form.

- (a) The line containing $(1, 0, 4)$, $(2, 1, 1)$.
- (b) The line containing $(2, 1, 1)$, $(2, 1, -2)$.
- (c) The line containing $(-4, -2, 5)$, $(1, 1, -5)$.
- (d) The line parallel to $\vec{v} = (0, 1, 2)$ and passing through $(1, 2, 3)$.
- (e) The line parallel to $\vec{v} = (0, 1, 2)$ and passing through $(0, 1, 2)$.
- (f) The line parallel to $\vec{v} = (1, 2, 3)$ and passing through $(1, 2, 3)$.
- (g) The line parallel to $\vec{v} = (1, 2, 3)$ and passing through $(0, 1, 2)$.

2. Find the points of intersection (if any) of the following lines:

- (a) $\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 3 \\ 0 \\ 3 \end{bmatrix} + t \begin{bmatrix} 1 \\ -1 \\ 5 \end{bmatrix}$ and $\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 10 \\ 1 \\ 11 \end{bmatrix} + s \begin{bmatrix} 2 \\ 1 \\ 1 \end{bmatrix}$
- (b) $\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 3 \\ 0 \\ 3 \end{bmatrix} + t \begin{bmatrix} 1 \\ -1 \\ 5 \end{bmatrix}$ and $\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 10 \\ 1 \\ 14 \end{bmatrix} + s \begin{bmatrix} 2 \\ 1 \\ 1 \end{bmatrix}$
- (c) $\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 3 \\ 0 \\ 3 \end{bmatrix} + t \begin{bmatrix} 1 \\ -1 \\ 5 \end{bmatrix}$ and $\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 4 \\ -1 \\ 8 \end{bmatrix} + s \begin{bmatrix} -2 \\ 2 \\ -10 \end{bmatrix}$