

Assignment 3 – Parts 1 & 2 – Math 243

Textbook exercises:¹

Section 11.4: 2, 4, 6, 8, 10, 16, 24 and 26

Other exercises:

- (1) Find a parametric vector equation $\mathbf{r} = \mathbf{r}_0 + t\mathbf{v}$ for the following lines. Also write them as parametric component equations.
 - (a) The line through the points $(0, 1, 3)$ and $(1, 4, -2)$.
 - (b) The line through $(-1, 7, 0)$ parallel to the vector $(4, -4, 4)$.
 - (c) The line through the point $(-3, -2, 1)$ and the midpoint of the line segment connecting $(4, 6, 8)$ to $(8, 6, 2)$.
 - (d) The line given by the pair of non-parametric equations

$$\frac{x - 2}{3} = \frac{y - 1}{5} = \frac{z + 1}{2}.$$

- (2) Find a pair of non-parametric equations for the line through the point $(7, -2, 1)$ parallel to the vector $(4, 5, 3)$.

¹From Hass, Weir, and Thomas' *University calculus: alternate edition*