

Answers to Practice Problems for Midterm 1:

1: (a) (your answer may look different)

$$\{x = t, y = -2t + 1, z = -3t + 2\}$$

(b)

$$3x - 2y + z = 6.$$

2: (a)

$$x(t) = -2 + 3 \cos t, \quad y(t) = 1 + 3 \sin t.$$

(b)

$$\{x = -2t + 3, y = 3t - 1, z = -t + 5\}$$

3: (a)

$$\mathbf{w} = \begin{bmatrix} 4/5 \\ 0 \\ 3/5 \end{bmatrix}, \quad \text{or} \quad \mathbf{w} = \begin{bmatrix} -4/5 \\ 0 \\ -3/5 \end{bmatrix}$$

(b) $\alpha = 2/5$.