MATH 283 Additional questions

1. What is a vector parallel to the line with parametric equations: \( x(t) = x_0 + 2t, \ y(t) = y_0 + 2t, \ z(t) = z_0 + t \)

2. Which line is \textbf{parallel} to the plane \( 2x + 2y + 4z + 7 = 0 \):
   (a) \( x = x_0 + 2t, \ y = y_0 + 2t, \ z = z_0 + 4t \)
   (b) \( x = x_0 + 3t, \ y = y_0 - 5t, \ z = z_0 + t \)
   (c) \( x = x_0 + 2t, \ y = y_0 + 2t, \ z = z_0 + t \)
   (d) none of these.

3. Which plane below contains the line with parametric equations \( x(t) = x_0 + 2t, \ y(t) = y_0 + 2t, \ z(t) = z_0 + t \)?
   (a) \( (x - x_0) + (y - y_0) + 4(z - z_0) = 0 \)
   (b) \( 3(x - x_0) + (y - y_0) - 4(z - z_0) = 0 \)
   (c) \( 4(x - x_0) - 2(y - y_0) + 10(z - z_0) = 0 \)
   (d) \( (x - x_0) + (y - y_0) - 4(z - z_0) = 0 \)
   (e) none of these.

4. Find the time \( t \) \textbf{and} the point where the line \( \mathbf{r}(t) = ti + (1 + t)\mathbf{j} + (1 + 2t)\mathbf{k} \) intersects the plane \( x + 4y + 5z = 39 \).