Section 12.5: Additional Problems

1. Find the equation of the plane containing the point $(1, 1, 1)$ and perpendicular to the line

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

2. Show that these lines are skew.

Line 1:	Line 2
$x = 3 + t$	$x = 4 - v$
$y = 2 - 4t$	$y = 3 + v$
$z = t$	$z = -2 + 3v$

3. Find the angle between these planes.

$x + 2y + z = 4$ $\qquad$ $3x + 6y + 2z = 12$

4. Determine if these lines are parallel. If you answer was no, then determine if the lines are intersecting or skew. Justify your answer.

L_1 : $\quad x = t + 2,\ y = 1 + 4t,\ z = 2t$

L_2 : $\quad \dfrac{x-1}{2} = \dfrac{y-5}{4},\ z = 10$

5. Does the line L lie in a plane that would be parallel to the plane P? Justify your answer.

L: $x = 1 + 3t,\ y = 1 + t,\ z = 1 - 5t$

P: $x + 2y + z = 5$

6. Does the line L lie in a plane that would be parallel to the plane P? Justify your answer.

L: $x = 1 + 4t,\ y = 1 + 2t,\ z = 1 - t$

P: $x + 3y + z = 23$

7. Find the distance from the line from the plane.

Line: $x = 1 - 3t,\ y = 1 + t,\ z = 1 + t$

Plane: $x + 2y + z = 10$

8. Find the distance from the line from the plane.

Line: $x = 1 + 2t,\ y = 1 + t,\ z = 1 + t$

Plane: $x + 2y + z = 10$