

MAT 221 – 051
Spring 2008
Test Two
Show all work.

1. Write an equation of the line that passes through the point $(1, 0, 6)$ and is perpendicular to the plane $x + 3y + z = 5$.

2. Write an equation of the line through the points $(6, 1, -3)$ and $(2, 4, 5)$.

3. Write an equation of the plane through the points $(0, 1, 1)$, $(1, 0, 1)$, and $(1, 1, 0)$.

4. Write an equation of the plane through the point $(-1, 6, -5)$ that is parallel to the plane $x + y + z + 2 = 0$.

5. Write an equation of the plane that passes through the point $(6, 0, -2)$ and contains the line

$$\begin{aligned}x &= 3t \\y &= 1 + t \\z &= 2 - t\end{aligned}$$

6. Determine the point of intersection of the line

$$\begin{aligned}x &= 3 - t \\y &= 2 + t \\z &= 5t\end{aligned}$$

and the plane $x - y + 2z = 9$.

