1. (30 points) Find the equation of a plane with a normal vector $(1, 4, 1)$ and a point $(1, 2, 3)$.

Solution:

$$(x - 1) + 4(y - 2) + (z - 3) = 0$$

2. (30 points) Determine whether the planes $2x - 3y - z = 0$ and $4x - 6y - 2z = 3$ are parallel. Justify your answer to receive credit.

Solution: This is equivalent to asking whether $(2, -3, -1)$ and $(4, -6, -2) = 2(2, -3, -1)$ are parallel, which they are.