PLANES

Use the given information to find, if possible, the equation of the plane. For each problem, give your answer in the form $z = Ax + By + C$. If the information given doesn't define a unique plane, state so along with the reason why.

1. Contains the points $P = (1,0,3)$ and $Q = (0,2,4)$, and intercepts the *z*-axis at $(0,0,1)$.

2. Contains the points $P = (2,3,4)$, $Q = (5,3,8)$, and $R = (2,6,9)$.

3. Has intercepts $(0,0,5)$, $(4,0,0)$, and $(0,10,0)$.

4. The slope in the direction of the positive *x*-axis is 3, the slope in the direction of the positive *y*-axis is -2, and it contains the point $P = (2,1,4)$.

5. Contains the points $P = (2,3,0)$, $Q = (2,3,5)$, and $R = (2,3,9)$.