

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 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 $R = (2, 3, 9)$.