

1. (10 points) Given the points $P = (p_1, p_2, p_3)$, $Q = (q_1, q_2, q_3)$, and $R = (r_1, r_2, r_3)$, find the equation of the plane containing P , Q , and R .

2. Identify and sketch the following surfaces:

(a) (2 points)

$$x = \sqrt{1 - y^2 - z^2}$$

(b) (1 point)

$$y = 2 - x$$

(c) (2 points)

$$z = \sqrt{3}\sqrt{x^2 + y^2}$$

(d) (3 points)

$$y = 3 - x^2 - z^2$$

(e) (2 points)

$$x^2 + y^2 = 5$$