

$$F(x, y, z) = 3x^2 + 2y^2 + z^2$$

$$G(x, y, z) = x^2 + y^2 + z^2 - 8x - 6y - 8z + 24 = 0$$

$$p = (1, 1, 2)$$

$$\nabla F(x, y, z) = (6x, 4y, 2z)$$

$$\nabla F(1, 1, 2) = (6, 4, 4)$$

$$\nabla G(x, y, z) = (2x - 8, 2y - 6, 2z - 8)$$

$$\nabla G(1, 1, 2) = (-6, -4, -4)$$

$$\nabla G(1, 1, 2) = -1 \nabla F(1, 1, 2) \text{ Son paralelas } \blacksquare$$