Q.1: Write name of the surfaces obtained by the following equations.

(a) \(2x^2 - 3y^2 + 3z^2 = 1\)

(b) \(x^2 - y^2 - z^2 = 0\)

(c) \(x + y^2 + z^2 = 4\)

(d) \(x^2 - y^2 - z^2 = 1\)

Q.2: Find the limit of \(f\) as \((x, y) \to (0, 0)\) or show that the limit does not exist for

\[ f(x, y) = \frac{3x^2y}{2x^4 + y^2} \]

Q.3: Show that \(f(x, y) = \log(\sqrt{x^2 + y^2})\) satisfy the Laplace equation

\[ \frac{\partial^2 f}{\partial x^2} + \frac{\partial^2 f}{\partial y^2} = 0 \]