

Values

- 8 1. (a) What is the value of the constant C in order that the point $(1, 1, 1)$ be on the curve

$$x^3y^3 + xy = 2, \quad 3x + 2y - Cz = 1?$$

- (b) Find a unit tangent vector to the curve at the point $(1, 1, 1)$.

- 12 2. Evaluate the double iterated integral

$$\int_{-2}^0 \int_{-4}^{2x} x\sqrt{x^2 + y^2} \, dy \, dx.$$

- 20 3. Find the maximum value of the function

$$f(x, y) = xy(2 - x - y)$$

on the region $x + y \leq 1, \quad x \geq 0, \quad y \geq 0$.