

Math 225 – Quiz #3: Substitutions

Clearly and neatly show all work for each problem. Solutions with no work will receive no credit. Implicit solutions are acceptable.

$$(1) \quad x \frac{dy}{dx} - y = \sqrt{x^2 + y^2}, \quad x > 0$$

$$(2) \quad x^2 \frac{dy}{dx} + y^2 = xy, \quad x > 0$$

$$(3) \quad \sqrt{y} \frac{dy}{dx} + y^{3/2} = 1, \quad y(0) = 4$$

$$(4) \quad y \, dx + x(\ln x - \ln y - 1)dy = 0, \quad y(1) = e$$