

Department of Mathematics and Statistics, KFUPM

Math-101 Semester-183 QUIZ III

NAME:

S.No.

ID:

Maximum Marks: 7.5

Section:13

Time Allowed: 35 minutes

- (1) Find  $\frac{dy}{dx}$ , if (a)  $y = \sqrt{3x^2 + \sqrt{\sin^{-1}(x^2 - 1)}}$  (b)  $x^3 + y^3 - 9x\sqrt{y} = 0$
- (2) If the tangent line to the graph of  $y = x^2 - 4x + 19$  at the point  $P(\alpha, \beta)$ , where  $\alpha < 0$ , passes through the point  $(3, 0)$ , then find the value of  $\beta$ .
- (3) If  $f(x) = \frac{2^x - 1}{e^{(x^2 + 1)}}$ , find  $f'(x)$ .