

KFUPM – Math 101– Major Quiz 3– Dr. Jamal Al-Smail

Name : ..... ID #.....Sec# ..... Serial #: .....

**Question 1** [2 points]: Find  $f'(1)$  for the function

$$f(x) = e^3 + e^x + x^e + \sqrt{x}.$$

**Question 2** [3 points]: Suppose that  $f(2) = -3$ ,  $g(2) = 4$ ,  $f'(2) = -2$ ,  $g'(2) = 7$ , and

$$h(x) = \frac{g(x)}{1 + f(x)}.$$

Find  $h'(2)$ .

**Question 3** [3 points]: Find the slope of the tangent to the curve at  $x = 0$ ,

$$y = \sqrt{\sec x + xe^{-2x}}.$$

**Question 4** [2 points]: Find the limit,

$$\lim_{x \rightarrow 1} \frac{\sin(x - 1)}{x^2 + x - 2}.$$