

Math101 Term191
Sec17 Quiz 3

Name	ID	Sr
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Instruction: CIRCLE one answer and SHOW all your work to get full mark

Q1) The equation of the tangent line to $y = x^2 + 2x$, $x \leq 1$ that passes through the point (1,2) is

a) $y = 6x - 4$

b) $y = 2x$

c) $y = -4x + 6$

d) $y = 4x - 2$

e) $y = -6x + 4$

Q2) If $f(x) = \frac{x}{x+e^x}$, then $f'(0) =$

a) $1 + e$

b) $\frac{1}{2}$

c) -1

d) 0

e) 1

Q3) If the function $f(x) = \begin{cases} ax^2 - 8 & \text{if } x < 2 \\ x^3 - bx & \text{if } x \geq 2 \end{cases}$ is differentiable everywhere, then $a^2 + b^2 =$

- a) 2
- b) 17
- c) 20
- d) 25
- e) 5

Q4) The number of points on the graph of the function $f(x) = \sin^2 x - 2 \cos x - \sin x - x + 1$, $0 \leq x \leq 2\pi$ at which the tangent is horizontal is

- a) 0
- b) 1
- c) 2
- d) 3
- e) 4