

Math101 Term181
Sec13 Quiz 3

Name	ID	Sr
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Q1(5points) For what values of a, b is the following function differentiable on $(-2,5)$

$$f(x) = \begin{cases} -ax^3 - (b+5)x - 3 & \text{if } -2 < x \leq 1 \\ (2a+4)x^3 - 2(b+5)x^2 + 3b+9 & \text{if } 1 < x < 5 \end{cases}$$

(Show your work)

Q2) (5 points) Find the equation of the **tangent line** to the curve $y = \frac{x}{x+2}$, that passes through the point $(2,1)$.

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Sec17 Quiz 3

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Q1(5points) For what values of a, b is the following function differentiable on $(-2,5)$

$$f(x) = \begin{cases} ax^3 + bx - 3 & \text{if } -2 < x \leq 1 \\ 2ax^3 + 2bx^2 - 3a & \text{if } 1 < x < 5 \end{cases}$$

(Show your work)

Q2(5points) Find the following limit (if it exists)

$$L = \lim_{x \rightarrow e} \frac{x^e e^x + x^2 - e^{2e} - e^2}{e - x}$$

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Q1(5points) For what values of a, b is the following function differentiable on $(-2,5)$

$$f(x) = \begin{cases} (2a - 3)x^3 - (b - 2)x - 3 & \text{if } -2 < x \leq 1 \\ ax^3 - (2b - 4)x^2 - b & \text{if } 1 < x < 5 \end{cases}$$

(Show your work)

Q2(5points) Find the following limit (if it exists)

$$L = \lim_{x \rightarrow e} \frac{x^e e^x + x^3 - e^{2e} - e^3}{2e - 2x}$$

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Sec21 Quiz 3

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Q1(5points) For what values of a, b is the following function differentiable on $(-2,5)$

$$f(x) = \begin{cases} (a+1)x^3 - (b+4)x - 3 & \text{if } -2 < x \leq 1 \\ (2a+2)x^3 - 2(b+4)x^2 - b - 6 & \text{if } 1 < x < 5 \end{cases}$$

(Show your work)

Q2(5points) Find the following limit (if it exists)

$$L = \lim_{x \rightarrow e} \frac{x^e e^x + x^2 - e^{2e} - e^2}{3e - 3x}$$