MATH 11012 | Intuitive Calculus | Spring 2011
Circle one: 8:50 5:30 | Ms. Kracht

Name: _____ Quiz Score: /25

Quiz 2: Version A

Show your reasoning. Use standard notation correctly. Simplify your answers.
You may NOT share calculators or use a cell phone or any Internet device as a calculator.

(1) (5 pts) An investment of P dollars is made with an annual rate r compounded annually. After 1 year, the amount in the account is

$$P + rP = P(1 + r).$$

DERIVE the formula for the amount in the account after 2 years. (That is, show where this formula comes from.)

(2) (5 pts) An investment grows at 3.25% compounded continuously. How many years will it take to triple? *Set up and solve an equation. Show all steps clearly. Give both an exact answer and an approximation rounded to the nearest tenth of a year.*

(3) (5 pts) Find $\frac{dy}{dx}$ where $y = \ln(1 - 2x)$.

(4) (5 pts) Find $\frac{d}{dt}\left(40e^{-25t}\right)$.

(5) (5 pts) Find $f'(x)$ where $f(x) = \frac{e^x + 1}{e^x - 1}$.

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Quiz 2: Version B

Show your reasoning. Use standard notation correctly. Simplify your answers.
You may NOT share calculators or use a cell phone or any Internet device as a calculator.

(1) (5 pts) An investment of P dollars is made with an annual rate r compounded annually. After 1 year, the amount in the account is

$$P + rP = P(1 + r).$$

DERIVE the formula for the amount in the account after 2 years. (That is, show where this formula comes from.)

(2) (5 pts) An investment grows at 4.75% compounded continuously. How many years will it take to triple? *Set up and solve an equation. Show all steps clearly. Give both an exact answer and an approximation rounded to the nearest tenth of a year.*

(3) (5 pts) Find $\frac{dy}{dx}$ where $y = \ln(1 - 5x)$.

(4) (5 pts) Find $\frac{d}{dt}\left(30e^{-15t}\right)$.

(5) (5 pts) Find $f'(x)$ where $f(x) = \frac{e^x + 2}{e^x - 2}$.

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Quiz 2: Version C

Show your reasoning. Use standard notation correctly. Simplify your answers.
You may NOT share calculators or use a cell phone or any Internet device as a calculator.

(1) (5 pts) An investment of P dollars is made with an annual rate r compounded annually. After 1 year, the amount in the account is

$$P + rP = P(1 + r).$$

DERIVE the formula for the amount in the account after 2 years. (That is, show where this formula comes from.)

(2) (5 pts) An investment grows at 5.85% compounded continuously. How many years will it take to triple? *Set up and solve an equation. Show all steps clearly. Give both an exact answer and an approximation rounded to the nearest tenth of a year.*

(3) (5 pts) Find $\frac{dy}{dx}$ where $y = \ln(1 - 7x)$.

(4) (5 pts) Find $\frac{d}{dt}\left(50e^{-15t}\right)$.

(5) (5 pts) Find $f'(x)$ where $f(x) = \frac{e^x + 3}{e^x - 3}$.

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Quiz 2: Version D

Show your reasoning. Use standard notation correctly. Simplify your answers.
You may NOT share calculators or use a cell phone or any Internet device as a calculator.

(1) (5 pts) An investment of P dollars is made with an annual rate r compounded annually. After 1 year, the amount in the account is

$$P + rP = P(1 + r).$$

DERIVE the formula for the amount in the account after 2 years. (That is, show where this formula comes from.)

(2) (5 pts) An investment grows at 6.15% compounded continuously. How many years will it take to triple? *Set up and solve an equation. Show all steps clearly. Give both an exact answer and an approximation rounded to the nearest tenth of a year.*

(3) (5 pts) Find $\frac{dy}{dx}$ where $y = \ln(1 - 3x)$.

(4) (5 pts) Find $\frac{d}{dt}\left(20e^{-45t}\right)$.

(5) (5 pts) Find $f'(x)$ where $f(x) = \frac{e^x + 9}{e^x - 9}$.