

## Quiz 5

● Graded

Student

Colin Cano

Total Points

9.5 / 10 pts

Question 1

Q1.(a)

2 / 2 pts

✓ - 0 pts Correct :  $3e^x + 4x^3$

- 1 pt Incorrectly applied sum rule
- 1 pt Incorrect derivative of  $3e^x$
- 1 pt Incorrect derivative of  $x^4$
- 2 pts No correct work

Question 2

Q1.(b)

3 / 3 pts

✓ - 0 pts Correct :  $\frac{3t^2(t+t^2)-t^3(1+2t)}{(t+t^2)^2} = \frac{t^3(t+2)}{(t+t^2)^2} = \frac{t(t+2)}{(1+t)^2}$

- 1 pt Correct use of quotient rule (for instance writing the formula), but made a mistake differentiating either numerator and/or denominator
- 2 pts Incorrect use of quotient rule, but then correctly differentiated terms (using the wrong formula for quotient rule)
- 0.5 pts Algebra mistake was made. (Select this option with another)
- 3 pts No correct work

Question 3

Q1.(c)

2.5 / 3 pts

✓ - 0 pts Correct :  $3x^2e^x + x^3e^x = e^x(3x^2 + x^3)$

- 1 pt Correct use of product rule (for instance writing the formula), but made a mistake differentiating  $x^3$  and/or  $e^x$
- 2 pts Incorrect use of product rule, but then correctly differentiated the factors (using the wrong formula for product rule)

✓ - 0.5 pts Algebra mistake was made. (Select this option with another)

- 3 pts No correct work

1

This should be a +

Question 4

Q2

2 / 2 pts

✓ - 0 pts Correct :  $f'(\theta) = -\sin(\theta)$  and  $f''(\theta) = -\cos(\theta)$

- 0.5 pts (a) Incorrect sign :  $f'(\theta) = \sin(\theta)$

- 1 pt (a) Incorrect derivative: anything other than  $\pm \sin(\theta)$

- 0.5 pts (b) Incorrect sign:  $f''(\theta) = \cos(\theta)$

- 1 pt (b) Incorrect derivative: anything other than  $\pm \cos(\theta)$

TA:

Name: Colin Cano

Student ID: \_\_\_\_\_

1. Differentiate the following functions:

(a)  $f(x) = 3e^x + x^4$

$f'(x) = 3e^x + 4x^3$

$3e^x$

(b)  $g(t) = \frac{t^3}{t+t^2}$

$$g'(t) = \frac{(3t^2)(t+t^2) - t^3(2t+1)}{(t+t^2)^2}$$

$$\frac{(3t^2)(t+t^2) - t^3(2t+1)}{(t+t^2)^2}$$

(c)  $h(x) = x^3 e^x$

$h'(x) = x^3 e^x + 3x^2 e^x$

$3x^2 \cdot e^x + x^3 \cdot e^x$

2. Let  $f(\theta) = \cos(\theta)$  and compute:

(a)  $f'(\theta) = -\sin \theta$

(b)  $f''(\theta) = -\cos \theta$

## SCRATCH PAPER