

# Quiz 5

## TQS 211

You are welcome to use any written homework from Chapter 3, worksheets you completed, and a calculator but no books or class notes. Show *all* your work (algebraically or geometrically) for each and simplify. No credit is given without supporting work.

1. Find the derivative of the following functions:

(a) [3]  $\alpha(t) = (t^2 + 3)e^t$

(b) [2]  $\beta(x) = 5 \sin(x) - 5x + 4$

(c) [4]  $\gamma(p) = p \ln(2p + 1)$

2. If  $f(x) =$ , find  $f'(x) = \frac{6x^4 - x^{\frac{1}{3}}}{\sqrt{x}}$  in the following *two* ways:

(a) [3] by using the product or quotient rule

(b) [3] by using precalculus to simplify first and using the power rule

(c) Simplify the above answers to make sure they are consistent with one another.

3. Let  $f$  and  $g$  have the values in the following table:

(a) [2] Find  $\left(\frac{f}{g}\right)'(1)$ .

x	1	0	-2	10	12
$f(x)$	0	-2	0	-792	-1430
$g(x)$	-2	-2	10	178	262
$f'(x)$	7	3	-19	-259	-383
$g'(x)$	2	-2	10	38	46

(b) [3] Find  $(f \circ g)'(0)$ .