Mathematics Department
2020/2021

Name:	**The Product and Quotient Rule**	Date

Q1: Find the derivative of: $f(x) = (x^2 + 5)(x^2 - 3x + 1)$

a) $f'(x) = (2x)(2x - 3)$	b) $f'(x) = (2x) + (2x - 3)$
c) $f'(x) = (2x)(x^2 - 3x + 1) + (2x - 3)(x^2 + 5)$	d) $f'(x) = (2x)(x^2 - 3x + 1) - (2x - 3)(x^2 + 5)$

Q2: Find the derivative of $f(x) = \frac{x^2-2}{x^3+1}$

a) $f'(x) = \frac{(2x)(x^3+1)-(x^2-2)(3x^2)}{(x^3+1)^2}$	b) $f'(x) = \frac{(2x)(x^3+1)+(x^2-2)(3x^2)}{(x^3+1)^2}$
c) $f'(x) = \frac{(2x)(x^3+1)-(x^2-2)(3x^2)}{(x^3+1)}$	d) $f'(x) = \frac{(x^2-2)(3x^2)-(2x)(x^3+1)}{(x^3+1)^2}$

Q3: Let

$$f(0) = -1, \quad f'(0) = -1, \quad g(0) = 3, \quad g'(0) = -1,$$

$$(f.g)'(0) =$$

a) 3	b) 1	c) -2	d) 1

Q3: - let

$$f(1) = -2, \quad f'(1) = 3, \quad g(1) = 1, \quad g'(1) = -2$$

$$\left(\frac{f}{g}\right)'(1) =$$

a) $\frac{4}{9}$	b) $\frac{-4}{3}$	c) $\frac{-2}{9}$	d) $\frac{2}{3}$