

1. Differentiate each quotient and simplify your results.

$$(a) f(x) = \frac{3x+1}{3x-1}$$

$$(b) f(x) = \frac{2x^2+3}{x^3-x+4}$$

$$(c) f(x) = \frac{x}{x^2+1}$$

$$(d) f(x) = \frac{x^2+1}{x}$$

$$(e) f(x) = \frac{5}{x^2+1}$$

$$(f) f(x) = \frac{x^2+1}{5}$$

2. Assume that $f(x)$ and $g(x)$ are differentiable functions of x .

x	$f(x)$	$f'(x)$	$g(x)$	$g'(x)$
-2	3	1	-5	8
-1	-9	7	4	1
0	5	9	9	-3
1	3	-3	2	6
2	-5	3	8	?

Use the given table and the rules of differentiation to find the following.

(a) Let $j(x) = -4f(x)g(x)$. Find $j'(1)$.	(b) Let $h(x) = \frac{e^x}{f(x)}$. Find $h'(0)$.
(c) Let $k(x) = \frac{xf(x)}{g(x)}$. Find $k'(-2)$.	(d) Let $m(x) = x^3g(x)$. If $m'(2) = -48$, find $g'(2)$.