2.9 The Quotient Rule

Calculus   Name: _____

Find the derivative of each function.

1. $h(x) = \frac{3x - x^2}{x + 2}$

2. $g(x) = \frac{3x^6 + 4x^4 + x^2}{x}$

3. $f(x) = \frac{2e^x}{3 \ln x}$

4. $g(x) = \frac{2x + 1}{x^2 + 3}$

5. $h(x) = \frac{2x^5 + x^3 - 2x}{x^2}$

6. $f(x) = \frac{(1 - 2x)}{e^x}$

7. $h(x) = \frac{9x}{\cos x}$

Use the table to find the value of the derivatives of each function.

8.

t	$h(t)$	$h'(t)$	$f(t)$	$f'(t)$
1	4	2	-3	6

a. $a(t) = \dfrac{4h(t)}{f(t)}$

Find $a'(1)$.

b. $b(t) = \dfrac{3h(t)-2}{f(t)-1}$

Find $b'(1)$.

Use the table to find the value of the derivatives of each function.

9.

x	$f(x)$	$f'(x)$	$g(x)$	$g'(x)$
-3	-2	2	3	-1

a. $h(x) = \dfrac{g(x)}{2f(x)}$

Find $d'(-3)$.

b. $d(x) = \dfrac{1-\frac{f(x)}{2}}{3g(x)+2}$

Find $d'(-3)$.

Answers to 2.9 CA #2

1. $-\dfrac{x^2+4x-6}{(x+2)^2}$	2. $15x^4 + 12x^2 + 1$	3. $\dfrac{6e^x\left(\ln x-\frac{1}{x}\right)}{9(\ln x)^2}$	4. $-\dfrac{2x^2+2x-6}{(x^2+3)^2}$
5. $6x^2 + 1 + \dfrac{2}{x^2}$	6. $\dfrac{2x-3}{e^x}$	7. $\dfrac{9\cos x+9x\sin x}{\cos^2 x}$	8a. $-\dfrac{40}{3}$ 8b. $-\dfrac{21}{4}$	9a. $-\dfrac{1}{2}$ 9b. $-\dfrac{5}{121}$