2.8 The Product Rule

Calculus   Name: _____

Find the derivative of each function.

1. $h(x) = 5x^2 \ln x$

2. $h(x) = 3e^x(2 - 7x)$

3. $f(x) = 6 \sin x \cos x + x$

4. $g(x) = \dfrac{5}{x} \cos x$

5. $f(x) = \dfrac{e^x}{2} \ln x$

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

6.

x	$j(x)$	$j'(x)$	$k(x)$	$k'(x)$
-1	3	-4	5	-6

a. $h(x) = 2j(x)k(x)$
   Find $h'(-1)$.

b. $f(x) = \left(\dfrac{j(x)}{2} - 4\right)(1 - k(x))$
   Find $f'(-1)$.

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

7.

t	$c(t)$	$c'(t)$	$l(t)$	$l'(t)$
2	4	-2	-1	2

a. $f(t) = -3c(t)l(t)$
   Find $f'(2)$.

b. $h(t) = (5 - c(t))(1 + 2l(t))$
   Find $h'(2)$.