Lesson 232 Name_____ Pd_____
Quotient Rule

Use the quotient rule to find the derivative.

7. $f(x) = \dfrac{x}{x^2 + 1}$

9. $h(x) = \dfrac{\sqrt[3]{x}}{x^3 + 1}$

11. $g(x) = \dfrac{\sin x}{x^2}$

8. $g(t) = \dfrac{t^2 + 2}{2t - 7}$

10. $h(s) = \dfrac{s}{\sqrt{s} - 1}$

12. $f(t) = \dfrac{\cos t}{t^3}$

55. $g(x) = \left(\dfrac{x + 1}{x + 2}\right)(2x - 5)$

56. $f(x) = \left(\dfrac{x^2 - x - 3}{x^2 + 1}\right)(x^2 + x + 1)$

57. $g(\theta) = \dfrac{\theta}{1 - \sin \theta}$

58. $f(\theta) = \dfrac{\sin \theta}{1 - \cos \theta}$

Find f'(x) and f'(c)

15. $f(x) = \dfrac{x^2 - 4}{x - 3}$ $\qquad c = 1$

16. $f(x) = \dfrac{x + 1}{x - 1}$ $\qquad c = 2$

18. $f(x) = \dfrac{\sin x}{x}$ $\qquad c = \dfrac{\pi}{6}$

Use your calculator to find the equation of the tangent line at the point:

	Function	*Point*
59.	$y = \dfrac{1 + \csc x}{1 - \csc x}$	$\left(\dfrac{\pi}{6}, -3\right)$
61.	$h(t) = \dfrac{\sec t}{t}$	$\left(\pi, -\dfrac{1}{\pi}\right)$

Find if the function is continuous and differentiable on [-10,10]

$$f(x) = \begin{cases} 4^x - 8 & x < 2 \\ 0.5x + 7 & x \geq 2 \end{cases}$$

$$g(x) = \begin{cases} x^2 + 1 & x < 1 \\ 2x & x \geq 1 \end{cases}$$