MTH 175 Calculus/B. Knick
DLQ Sec. 2.3 Derivative Quiz 1-M
SHOW ALL WORK.

NAME:_____

10/12

(6*pts*) 1. Find the first derivative, $\frac{dy}{dx}$, using the product rule of:

$$f(x)=(5x^2-7)(3x^2-2x+1)$$

FOIL ERROR

$f'(x)=(5x^2-7)(6x-2)+(10x)(3x^2-2x+1)$ ✓

$=30x^3-42x-10x^2+14+30x^3-20x+10x$

$60x^3-30x^2-32x+14$

-2

$f'(x)=\cancel{60x^3-10x^2-52x}$

$f'(x)=2(30x^3-15x^2-16x+7)$

(6*pts*) 2. Find the first derivative, $\frac{dy}{dx}$, using the quotient rule of:

$$f(x)=\frac{5x-4}{3x^2+1}$$

$$f'(x)=\frac{(3x^2+1)(5)-(5x-4)(6x)}{(3x^2+1)^2}$$

✓

$$=\frac{15x^2+5-30x^2+24x}{(3x^2+1)^2}$$

$$f'(x)=\frac{-15x^2+24x+5}{(3x^2+1)^2}$$

(Bonus 5*pts*) 3. Find the first derivative, $\frac{dy}{dx}$, *of* : $y=\sin(2x^2-2x)$

$\frac{dy}{dx}[\sin u]=\cos u\,u'$

derivative of inner function

0

$y'=\cos(2x^2-2x)(4x-2)$