Name:                                                  Section:

1. Find the derivative of $f(x) = x^2 \sec(7x) + \sqrt{9x - 2}$

$$2x \cdot \sec(7x) + x^2 \cdot \sec(7x)\tan(7x) \cdot 7$$

$$+ \frac{1}{2}\left(9x - 2\right)^{-\frac{1}{2}} \cdot 9$$

2. Compute the integral
$$\int \frac{\sin x}{(1 + 3\cos x)^4}\, dx$$

$u = 1 + 3\cos x$

$du = -3\sin x\, dx$

$-\frac{1}{3} du = \sin x\, dx$

$$= \int \frac{-\frac{1}{3}\, du}{u^4}$$

$$= -\frac{1}{3}\int u^{-4}\, du$$

$$= -\frac{1}{3}\left(\frac{u^{-3}}{-3}\right) + c$$

$$= \frac{1}{9}\left(1 + 3\cos x\right)^{-3} + c$$

3. Indicate whether the following functions are one-to-one or not. For the ones that are one-to-one, draw their inverse on the same plot.

not
1-1

1-1

1-1



Inverse is the same
graph

1-1