

Name:

Section: 7 8

1. Find the following values.

(a) $\log_3\left(\frac{1}{27}\right)$

(b) $\cos^{-1}\left(\frac{-\sqrt{3}}{2}\right)$

(c) $\tan^{-1}(\sqrt{3})$

2. Differentiate the following functions.

(a) $f(x) = \ln(\sin^{-1}(x)) + \sec^{-1}(\sqrt{x})$.

(b) $y = \arctan(x^3)$.

3. Suppose you have a 200mg sample of cesium-137. The half-life of cesium-137 is 30 years. Find the mass of the sample after 7 years.

4. Evaluate the following integrals.

(a) Find $\int \frac{2x}{1+x^4} dx$. *Hint: let $u = x^2$.*

(b) Evaluate $\int \frac{1}{\sqrt{9-4x^2}} dx$. *Hint: factor 3 out of the denominator and let $u = \frac{2}{3}x$.*