

Name _____

No calculators are allowed!

1. (4 points) Determine the exact value of each of the following quantities.

(a) $\sin^{-1}\left(-\frac{1}{2}\right)$.

(b) $\cos^{-1}\left(\cos\left(\frac{5\pi}{4}\right)\right)$

(c) $\tan^{-1}\left(\tan\left(\frac{\pi}{3}\right)\right)$

(d) $\tan\left(\cos^{-1}\left(\frac{3}{10}\right)\right)$

2. (4 points) Find derivatives for each of the following functions.

(a) $\sin^{-1}(5x)$

(b) $x^2 \tan^{-1}(x)$

3. (2 points) Evaluate the following limits.

(a) $\lim_{x \rightarrow 1} \frac{\sin(x-1)}{x^2 + x - 2}$

(b) $\lim_{x \rightarrow \infty} \left(1 - \frac{2}{x}\right)^x$