

## PRACTICE PROBLEMS II

(1) Compute the following expressions:

(a)  $\sin\left(\frac{7\pi}{4}\right)$

(b)  $\arctan(-\sqrt{3})$

(c)  $\arccos\left(\cos\left(\frac{7\pi}{4}\right)\right)$

(d)  $\arctan\left(\tan\left(\frac{\pi}{6}\right)\right)$

(2) Compute the following expressions:

(a)  $\sec(\arctan(3))$

(b)  $\tan(\arcsin(\frac{6}{10}))$

(3) Do the following sequences converge? If so, to what?

(a)  $a_n = \ln(3n + 1) - \ln(2n)$

(b)  $b_n = \arctan\left(\frac{n+1}{n}\right)$

(c)  $c_n = \sin(n\pi)$

(4) Find the following limits:

(a)  $\lim_{x \rightarrow 1} \frac{\sqrt{x+3} - 2}{x-1}$

(b)  $\lim_{x \rightarrow 3} \sin(\pi x) - \cos\left(\frac{\pi}{2}(x-1)\right)$

(5) Using the Squeeze Theorem, find

$$\lim_{x \rightarrow 1} (x-1)^6 \cos\left(\frac{2x^2+1}{x-1}\right).$$