

1. Find two solutions for the equation $\tan \theta = \frac{1}{\sqrt{3}}$. Give both solutions in degrees *and* radians (which makes for *four* answers). Assume $0^\circ \leq \theta < 360^\circ$ and $0 \leq \theta < 2\pi$ for the answers in radians.

2. Evaluate $\arcsin\left(-\frac{\sqrt{3}}{2}\right)$

3. Construct a cosine function, $f(x)$, that models daily temperatures in Gunnison Colorado, in midwinter, with a high of 30° at 6 p.m. (a bit of a stretch on time of day for peak temperature, I realize...), and a low of -20° at 6 a.m. One day represents one period. Make it so that $x = 0$ corresponds to 12 a.m.

4. Sketch the graph of $g(x) = 3 \tan\left(\frac{\pi}{10}x - \frac{\pi}{5}\right) - 3$ by transforming the function $f(x) = \tan(x)$.

5. Evaluate the following:

a. $\cos(\arctan(x))$

b. $\csc(\arccos(x))$