Unit 2 Group Work
PCHA 2022-23 / Dr. Kessner

Name & Pledge:

No calculator! Have fun!

1. Evaluate the following:

a) $\tan \frac{7\pi}{6}$

b) $\sec \frac{4\pi}{3}$

c) $\cos(-\frac{7\pi}{6})$

d) $\cot \frac{99\pi}{4}$

e) $\cos^{-1} \sin(-\frac{\pi}{6})$

f) $\sin^{-1} \cos(-\frac{\pi}{6})$

2. Write down all the relevant properties (period, amplitude, shifts/scales, asymptotes) of the following trig functions, and then graph by hand.

$f(x) = 3\sec 2\pi x$

$g(x) = -3\tan \pi x$

3. Prove the identities:

$$(\sec\theta - \cos\theta)^2 + \sin^2\theta = \tan^2\theta$$

$$\frac{\sin\theta}{\sec\theta - \cos\theta} = \cot\theta$$

4. Use a sum formula to find $\cos(195°)$.

Derive the following half angle formula from the relevant double angle formula:

$$\cos u = \pm\sqrt{\frac{1+\cos 2u}{2}}$$

Use the half angle formula above to find $\cos(195°)$.

5. Solve the following triangle: $a = 10$, $c = 10\sqrt{3}$, $B = 30°$.

Solve the following triangle: $a = 10$, $b = 10$, $C = 60°$.