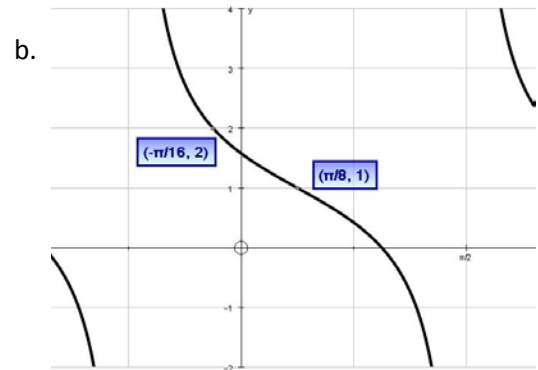
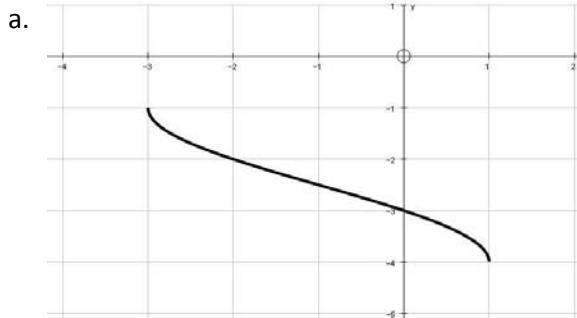


MATH HONORS 2: Trigonometry Review Questions

- A man is looking out of his apartment window at the office building across the street. From the man's point of view, the angle of elevation to the top of the office building is 57.5° , while the angle of depression to the base of the office building is 41.2° . Find:
 - the altitude of the man's eyes AND the height of the office building if the apartment and the office building are 14.6 meters apart
 - the altitude of the man's eyes AND the distance between the office building and the apartment if the office building is 41.8 meters tall
- Find the area of triangle ABC if $a = 8$ cm, $c = 7$ cm, and the perimeter of triangle ABC is 26 cm.
- In triangle XYZ, $x = 23.9$ meters and $Y = \frac{2\pi}{5}$. Find z if:
 - $y = 45.8$ meters
 - $y = 1.70$ meters
- Evaluate:
 - $\cot\left(-\frac{11\pi}{3}\right)$
 - $\sec(615^\circ)$
 - $\cos(2 \arctan(-1))$
- Solve:
 - $2 \cos\left(\frac{x}{2} + \frac{\pi}{2}\right) - \sqrt{3} = 0, -\pi \leq x \leq 4\pi$
 - $\tan^2 x + 1 + 2 \tan x \csc x = 8, x \in \mathbb{R}$
- Find a sinusoidal function which has a maximum point at $(-2, 5)$, a minimum point at $(7, -11)$, and no other maximum or minimum points when $x \in (-2, 7)$.
- Sketch the graph of $y = 1 - 2 \sin\left(\frac{2}{3}x - \frac{\pi}{3}\right)$ for $-2\pi \leq x \leq 2\pi$, labeling any intercepts and asymptotes.

- Use the given graphs to identify the functions:



- Prove that $\tan A + \tan B = \frac{\sin(A+B)}{\cos A \cos B}$