Pre-Calculus A
Section 4.6 Graphing Tan and Cot Homework

Name : Key
Date : _____ Period : ____

Please graph TWO FULL PERIODS of the following functions. Be sure to identify your asymptotes and find the domain, range and period.

1. $y = 2 + 2\tan\left(\frac{x}{4}\right)$

↳ increasing $-1 \to 0 \to 1$

→ Consecutive Asymptotes:

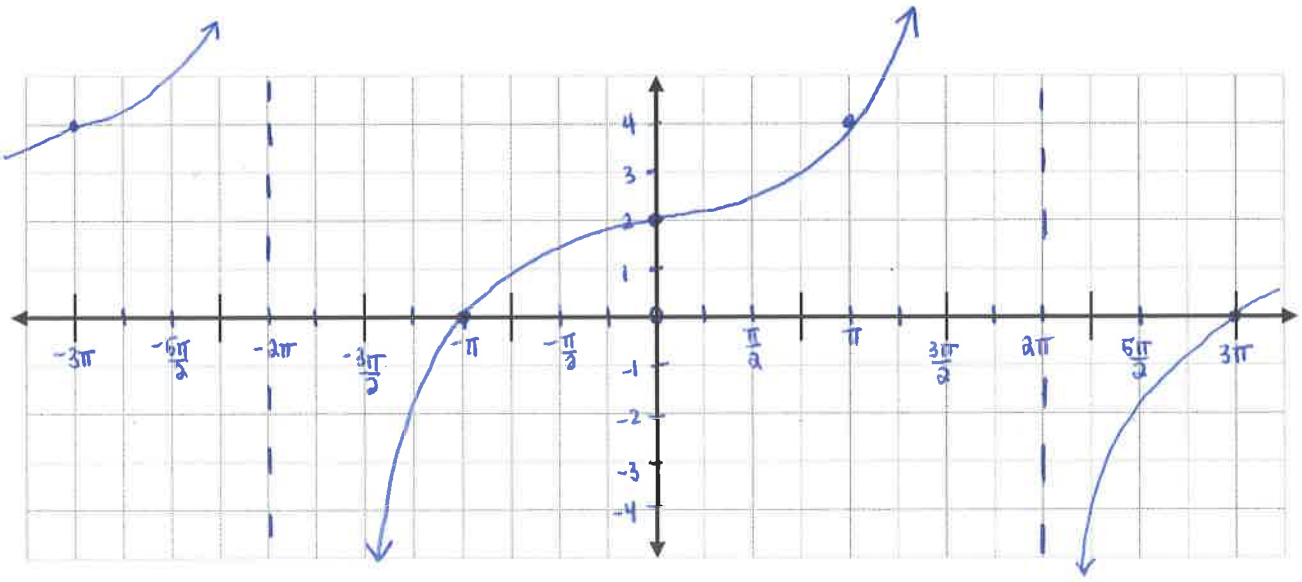
$\frac{x}{4} = -\frac{\pi}{2} \Rightarrow -2x = 4\pi \Rightarrow x = -2\pi$ ← Left asymptote

$\frac{x}{4} = \frac{\pi}{2} \Rightarrow \frac{2x}{2} = \frac{4\pi}{2} \Rightarrow x = 2\pi$ ← Right asymptote

→ midpoint at 2

→ 1st Quarter point: $-1 \times 2 = -2 + 2 = 0$

→ 2nd Quarter point: $1 \times 2 = 2 + 2 = 4$



Period = $2\pi - -2\pi = 2\pi + 2\pi = 4\pi$ Domain: $2\pi + 4\pi n$ Range: $(-\infty, \infty)$

↳ decreasing 1→0→-1

2. $y = 4\cot\left(x + \frac{\pi}{4}\right)$

→ Consecutive Asymptotes:

$x + \frac{\pi}{4} = 0$ $\qquad$ $x + \frac{\pi}{4} = \pi$

$x = -\frac{\pi}{4}$ $\qquad$ $x = \frac{4\pi}{4} - \frac{\pi}{4}$

↑ left asymptote $\qquad$ $x = \frac{3\pi}{4}$

↑ Right asymptote

→ midpoint at zero since there is no d-value

→ 1st Q. Point: $1 \times 4 = 4$

→ 2nd Q. Point: $-1 \times 4 = -4$