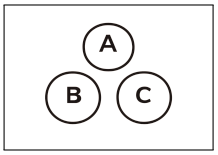
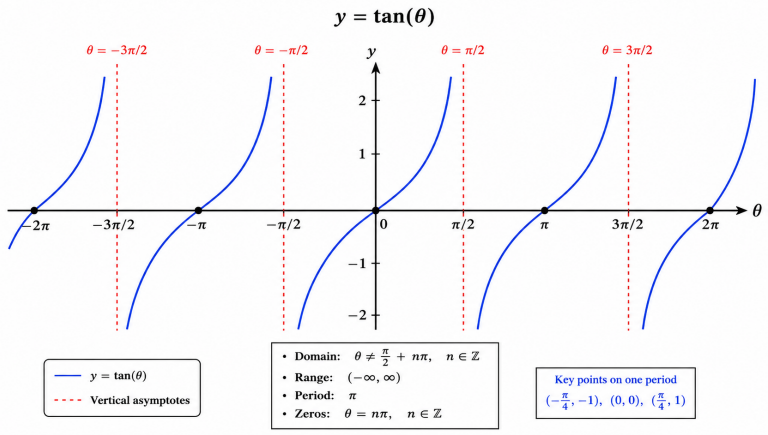
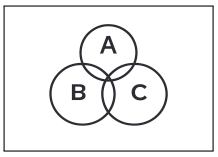
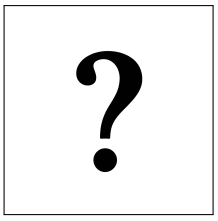
27 Formulas and Identities Tangent and Cotangent A







$tan(\theta) = sin(\theta)/cos(\theta)$



$y = 3\tan(2\theta - \pi/3) + 1$

$T = ?$

$Range = ?$

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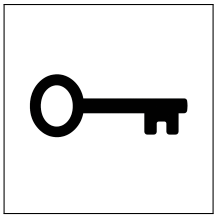

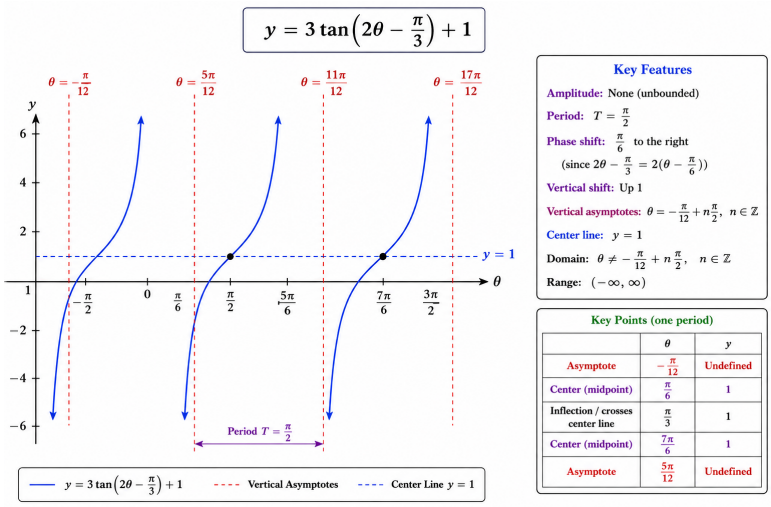

Key Features

Amplitude: None (unbounded)

Period: $T = \frac{\pi}{2}$

Phase shift: $\frac{\pi}{6}$ to the right
(since $2\theta - \frac{\pi}{3} = 2(\theta - \frac{\pi}{6})$)

Vertical shift: Up 1

Vertical asymptotes: $\theta = -\frac{\pi}{12} + n\frac{\pi}{2},\ n \in \mathbb{Z}$

Center line: $y = 1$

Domain: $\theta \neq -\frac{\pi}{12} + n\frac{\pi}{2},\ n \in \mathbb{Z}$

Range: $(-\infty, \infty)$

Key Points (one period)

	θ	y
Asymptote	$-\frac{\pi}{12}$	Undefined
Center (midpoint)	$\frac{\pi}{6}$	1
Inflection / crosses center line	$\frac{\pi}{3}$	1
Center (midpoint)	$\frac{7\pi}{6}$	1
Asymptote	$\frac{5\pi}{12}$	Undefined

$y = 3\tan(2\theta - \pi/3) + 1$

$y = a\tan(b\theta - c) + d$

$T = \pi/b = \pi/2$

$Range = (-\infty, \infty)$