Name:_____ **Date:**_____

Tangent Quiz

Multiple Choice

Identify the choice that best completes the statement or answers the question.

____ **1.** Which of the following is not an asymptote of the function $f(\theta) = \tan\theta$?

A. $x = -\frac{7}{2}\pi$

B. $x = -\frac{9}{2}\pi$

C. $x = -\frac{5}{2}\pi$

D. $x = -\pi$

____ **2.** Given the trigonometric function $y = \tan x$, which is the x-coordinate at which the function is undefined?

A. $\frac{9}{2}\pi$

B. $-\frac{7}{6}\pi$

C. $-\frac{1}{3}\pi$

D. $\frac{3}{4}\pi$

____ **3.** Given the trigonometric function $y = \tan x$, find the value of the y-coordinate of the point with x-coordinate $-1200°$.

A. $\sqrt{3}$

B. -1

C. 1

D. undefined

____ **4.** Which function has zeros only at $\theta = n\pi, n \in I$?

A. $y = \tan(\theta - \frac{4}{3}\pi)$

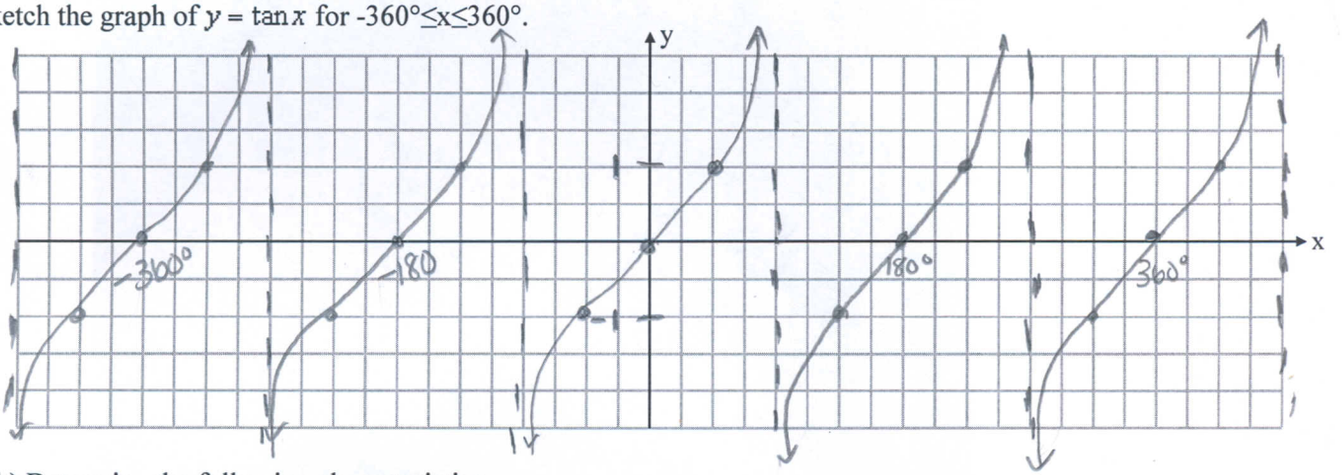
B. $y = \tan(\theta - \frac{7}{6}\pi)$

C. $y = \tan(\theta + \frac{1}{4}\pi)$

D. $y = \tan(\theta + 5\pi)$

Short Answer

1. Sketch the graph of $y = \tan x$ for $-360° \le x \le 360°$.



b) Determine the following characteristics.

i) Domain $\{x \mid -360 \le x \le 360°, x \ne -270°, -90°, 90°, 270°, x \in R\}$

ii) Range $\{y \mid y \in R\}$

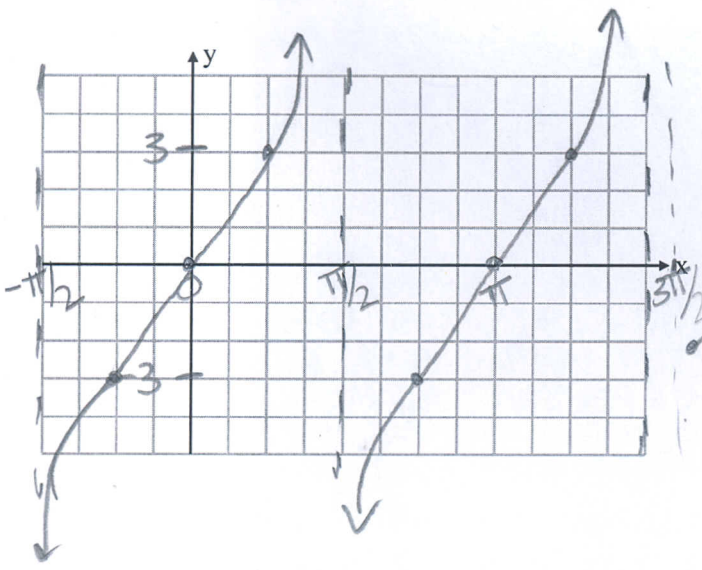
iii) y-intercept $y = 0$

iv) general equation for the x-intercepts $180n \quad n \in I$

v) general equation the asymptotes. $x = 90 \pm 180n$

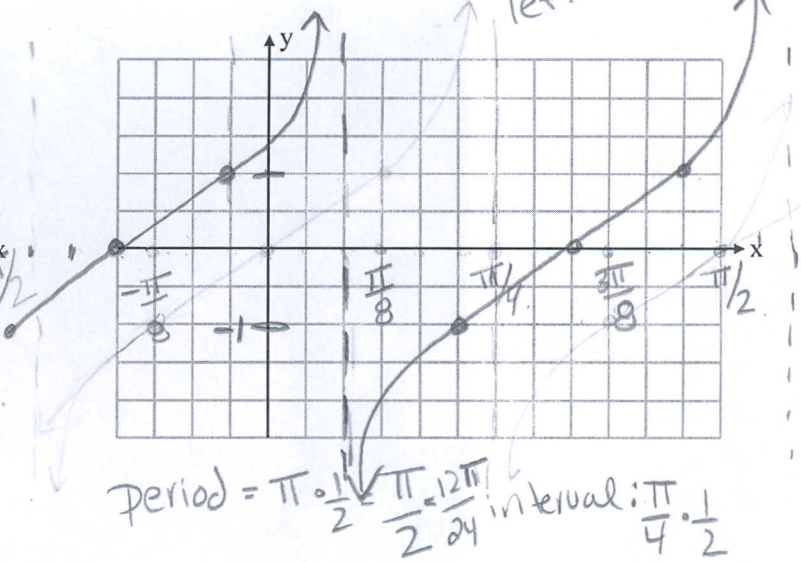
2. Graph at least one period of the following functions, with horizontal and vertical scales and all features shown clearly. Graph in radians.

(a) y = 3 tan x



(b) y = tan2(x + $\frac{\pi}{6}$)

moved left $\pi/6$



Period = $\pi \cdot \frac{1}{2} = \frac{\pi}{2} = \frac{12\pi}{24}$ interval: $\frac{\pi}{4} \cdot \frac{1}{2}$

$= \pi/8 =$

$= \frac{3\pi}{24}$

left $\pi/6 = \frac{4\pi}{24}$

3. How does cosθ relate to the asymptotes of the graph $y = \tan\theta$?

$\tan\theta = \frac{\sin\theta}{\cos\theta} = \frac{y}{x}$.

since cosθ is the denominator, when it is zero than θ is undefined.

$\cos\theta = 0$

$\theta = \pi/2, 3\pi/2$

$\frac{(2n+1)\pi}{2}$ $n \in I$