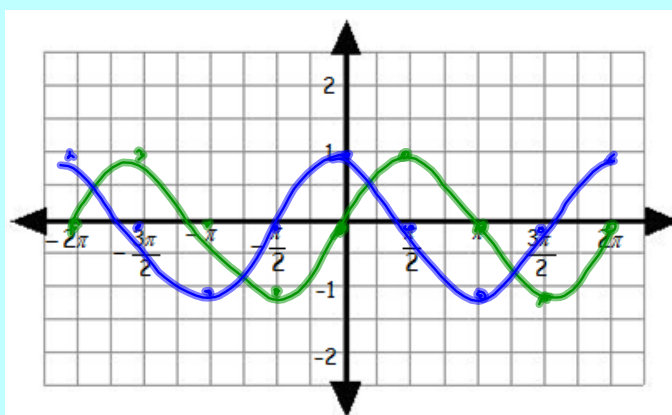


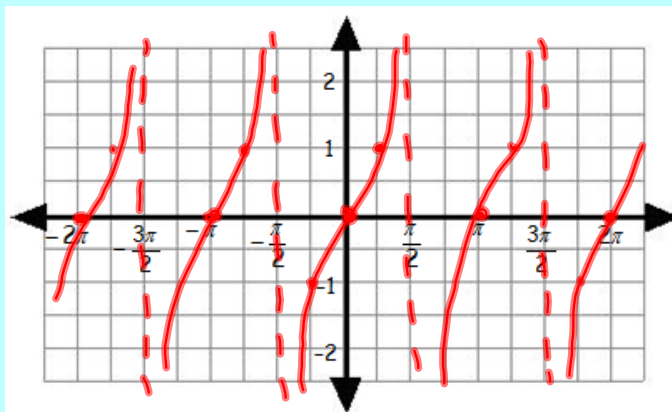
Graphing the Tangent Function

Graphing the Tangent Curve

$\sin(x)$
 $\cos(x)$



$$\frac{\sin x}{\cos x} = \tan x$$



Graphing the Tangent Curve

- What is the period of the tangent?

$$\pi$$

- Hence, what will be the new formula relating 'b' and the period of the tangent?

$$\text{Period} = \frac{\pi}{b}$$

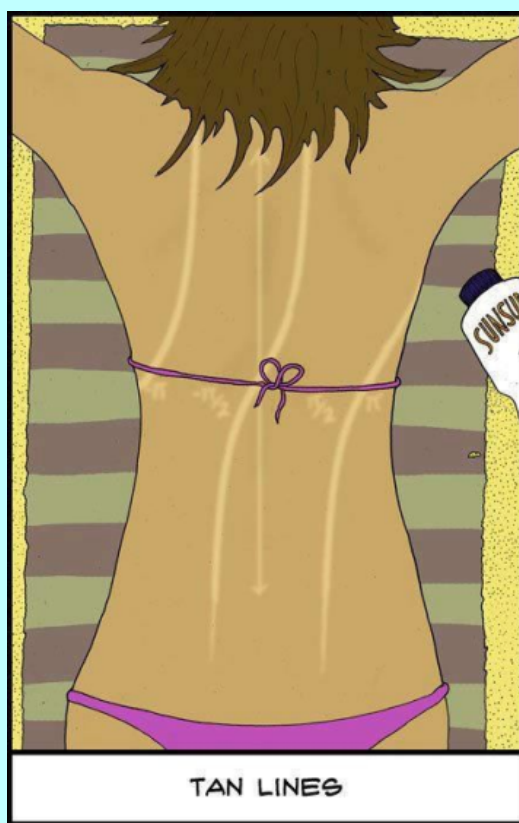
- What is the domain of the tangent?

$$x \in \mathbb{R}, x \neq \frac{\pi}{2} + \pi k$$

- What is the range of the tangent?

$$y \in \mathbb{R}$$

Graphing the Tangent Curve



Graphing the Tangent Curve

What about transformations?

$$f(x) = a \tan(b(x + c)) + d$$

$a \rightarrow$ vertical st/shrinks

$b \rightarrow$ changes pd.

$c \rightarrow$ phase shift (L/R)

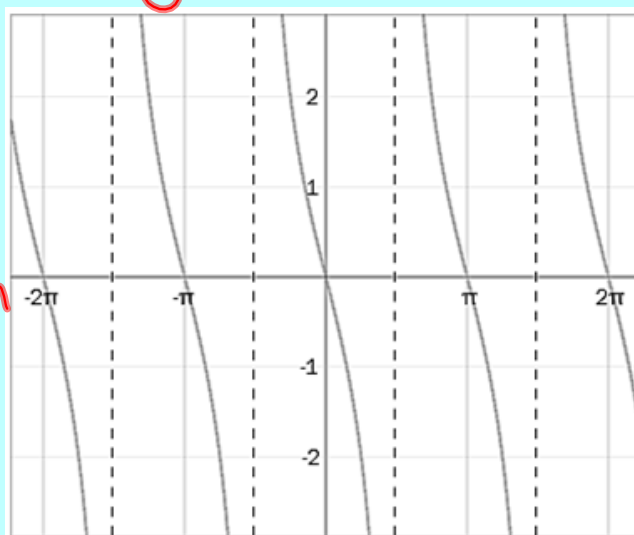
$d \rightarrow$ vertical translation \updownarrow

Graphing the Tangent Curve

$$y = -2 \tan x$$

- reflected
over
x-axis

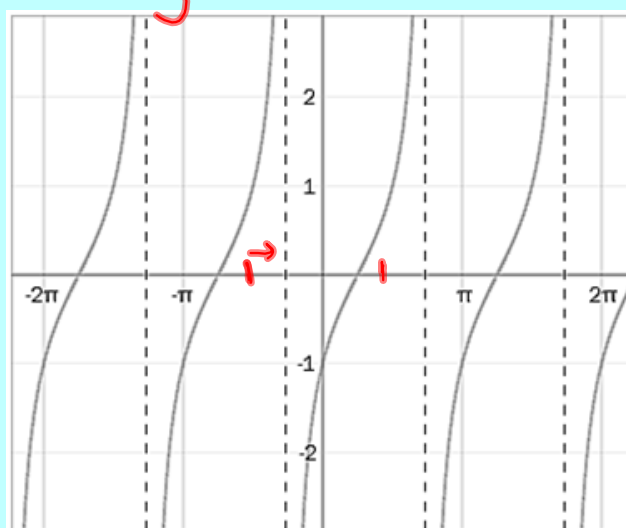
- Vertical stretch
by 2



Graphing the Tangent Curve

$$y = \tan\left(x - \frac{\pi}{4}\right)$$

- phase shift
right by $\frac{\pi}{4}$



Homework Assignment:

WS on 6-5

Attachments

Ch4_Unit Circle.gsp