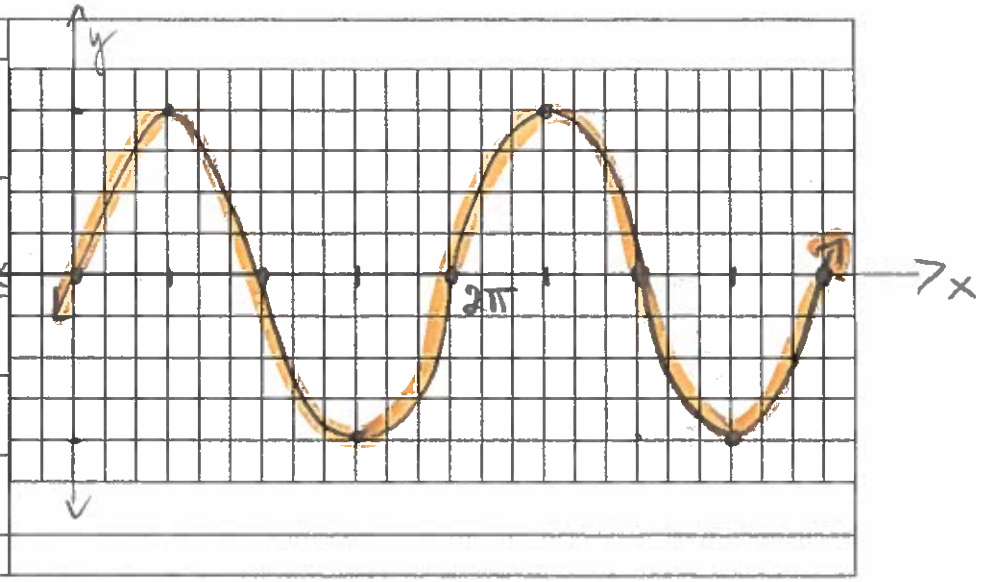
Notes :

Trigonometric Functions – Review

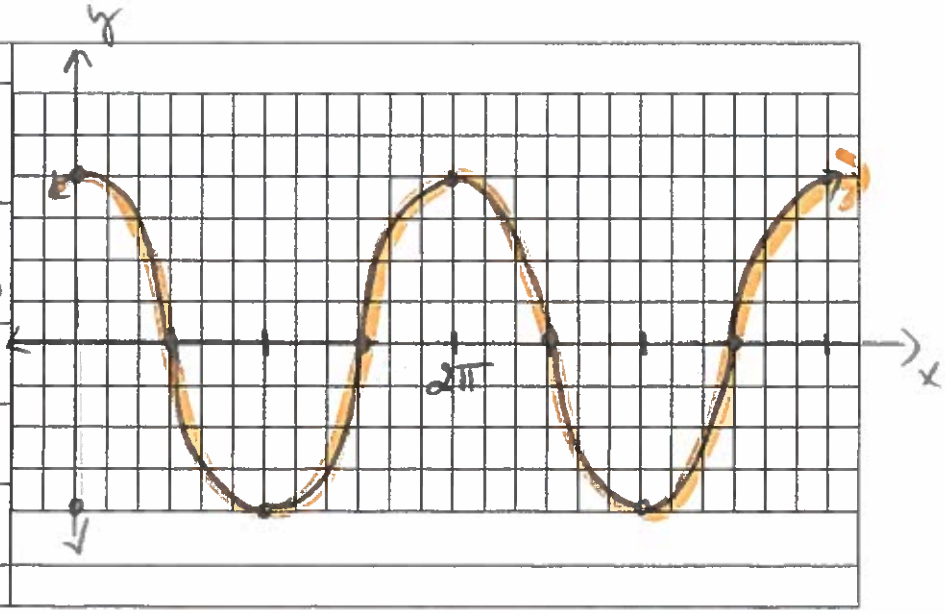
- Graph two cycles of each function.
- State the domain, range, period, maximum, minimum and NPVs if they exist.

Scale : I = 1 unit

1. f(x) =sin(x)
D: $\{x \mid x \in \mathbb{R}\}$
R: $\{y \mid -1 \le y \le 1, y \in \mathbb{R}\}$
Maximum: $y = 1$
Minimum: $y = -1$
NPVs: none
Period: $T = 2\pi$



2. f(x) =cos(x)
D: $\{x \mid x \in \mathbb{R}\}$
R: $\{y \mid -1 \le y \le 1, y \in \mathbb{R}\}$
Maximum: $y = 1$
Minimum: $y = -1$
NPVs: none
Period: $T = 2\pi$



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

3. f(x) = tan(x)

D: $\{x \mid x \neq (2n+1)\frac{\pi}{2}, n \in \mathbb{Z}, x \in \mathbb{R}\}$

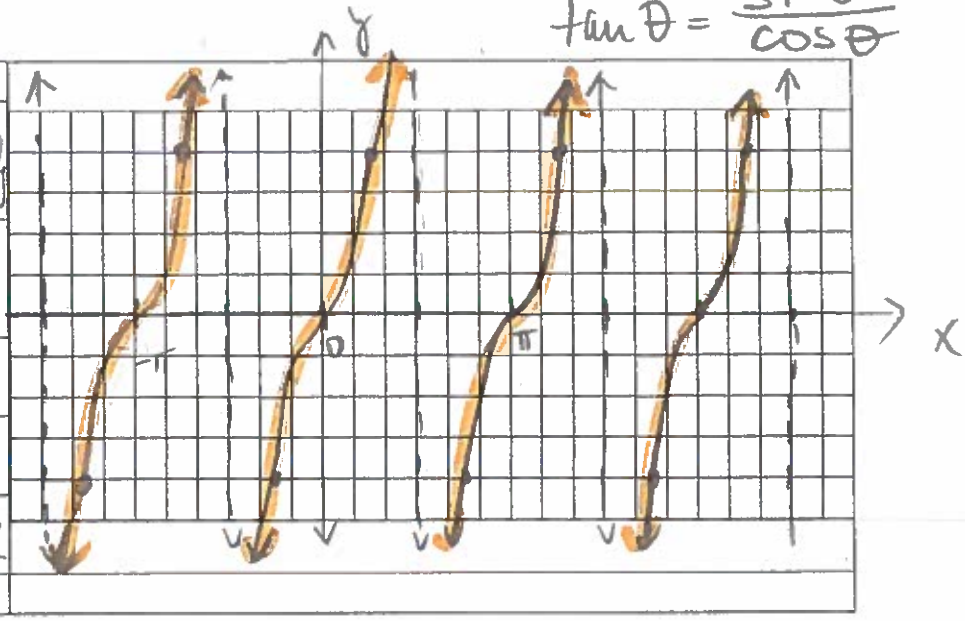
R: $\{y \mid y \in \mathbb{R}\}$

Maximum: none

Minimum: none

NPVs: $x = (2n+1)\frac{\pi}{2}, n \in \mathbb{Z}$

Period: $T = \pi$



$\cot\theta = \frac{\cos\theta}{\sin\theta}$

4. f(x) = cot(x)

D: $\{x \mid x \neq n\pi, n \in \mathbb{Z}, x \in \mathbb{R}\}$

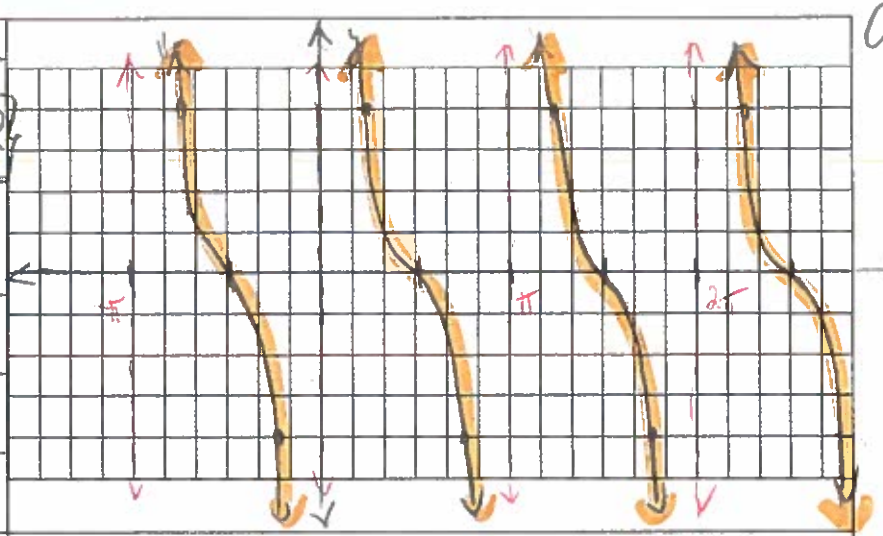
R: $\{y \mid y \in \mathbb{R}\}$

Maximum: none

Minimum: none

NPVs: $x = n\pi, n \in \mathbb{Z}$

Period: $T = \pi$



Scale: $\frac{\pi}{3} = 1$

5. f(x) = csc(x)

D: $\{x \mid x \neq n\pi, n \in \mathbb{Z}, n \in \mathbb{R}\}$

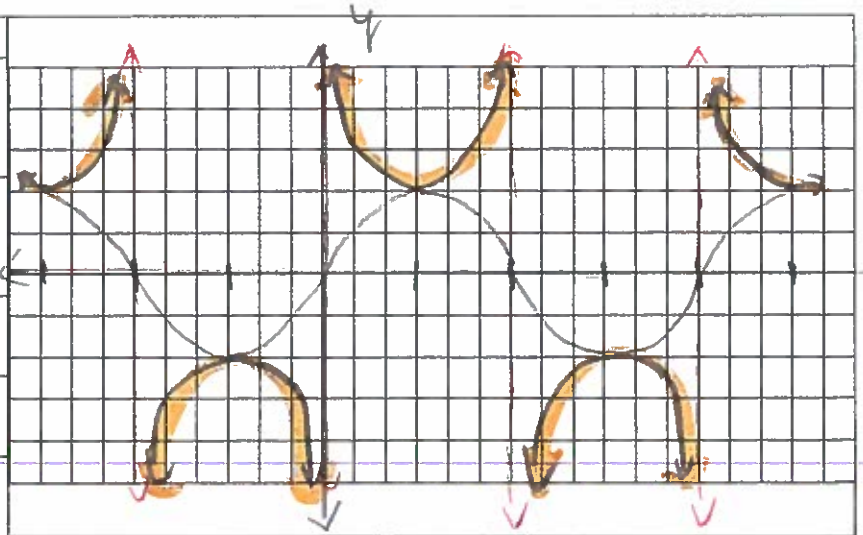
R: $\{y \mid y \leq -1 \cup y \geq 1, y \in \mathbb{R}\}$

* Maximum: none

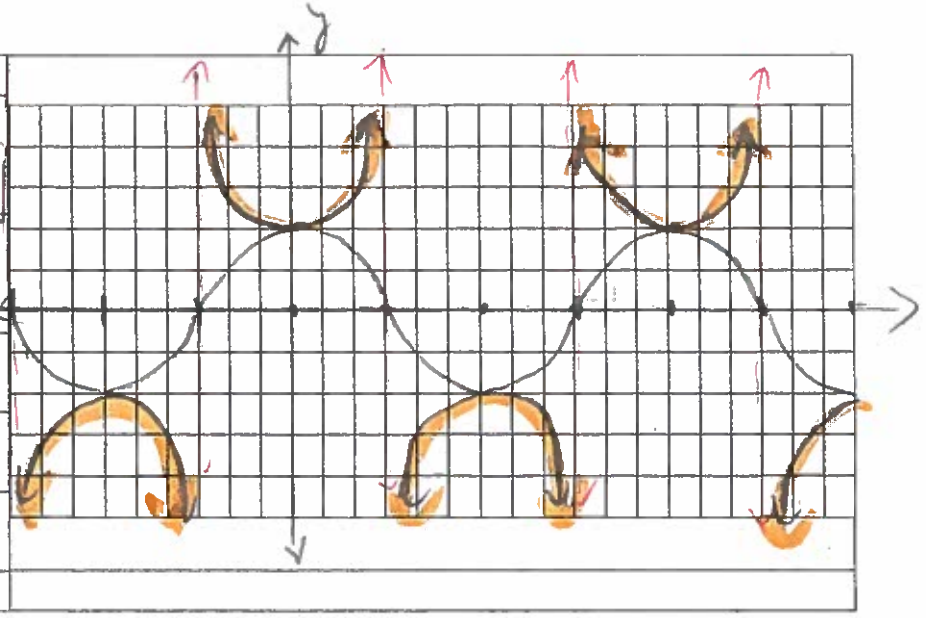
* Minimum: none

NPVs: $x = n\pi, n \in \mathbb{Z}$

Period: $T = 2\pi$



Scale: $\frac{\pi}{4}$ y=1

6. f(x) =sec(x)	
D: $\{x \mid x \neq (2n+1)\frac{\pi}{2}, n \in \mathbb{Z}, x \in \mathbb{R}\}$	
R: $\{y \mid y \leq -1 \text{ or } y \geq 1, y \in \mathbb{R}\}$	
Maximum: none	
Minimum: none	
NPVs: $x = (2n+1)\frac{\pi}{2}$	
Period: $T = 2\pi$	