Graphing Trig Functions

1) <u>Sine Curve</u>

$y = \sin x$

amplitude

period

| domain : all real x	
range : $-1 \leq y \leq 1$	period $= 2\pi$
odd function $\Rightarrow \sin(-x) = -\sin x$	amplitude $= 1$

2) Cosine Curve

$y = \cos x$
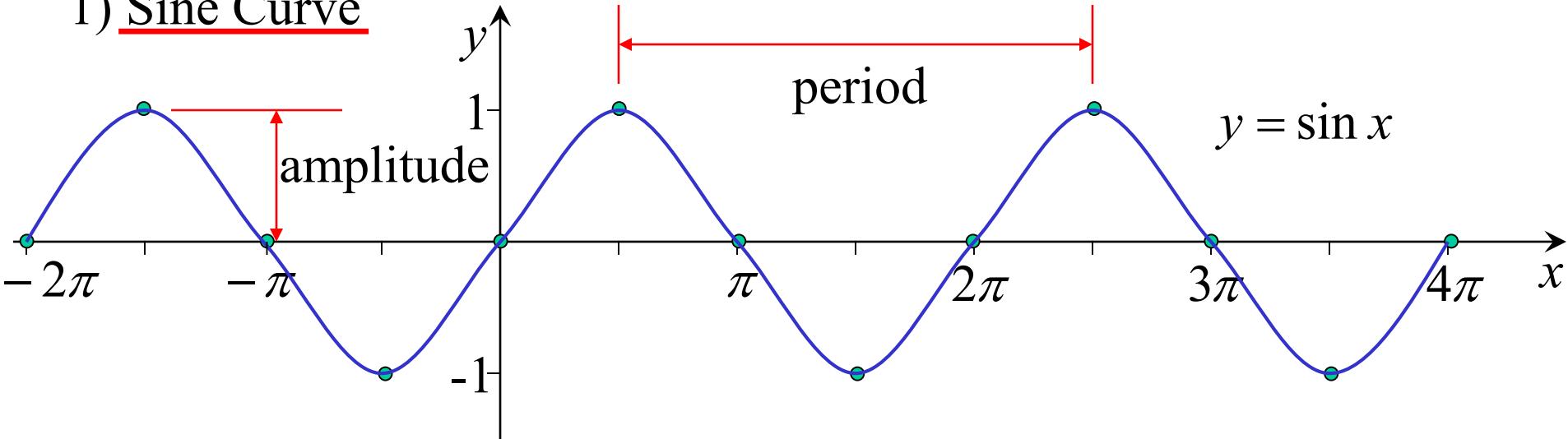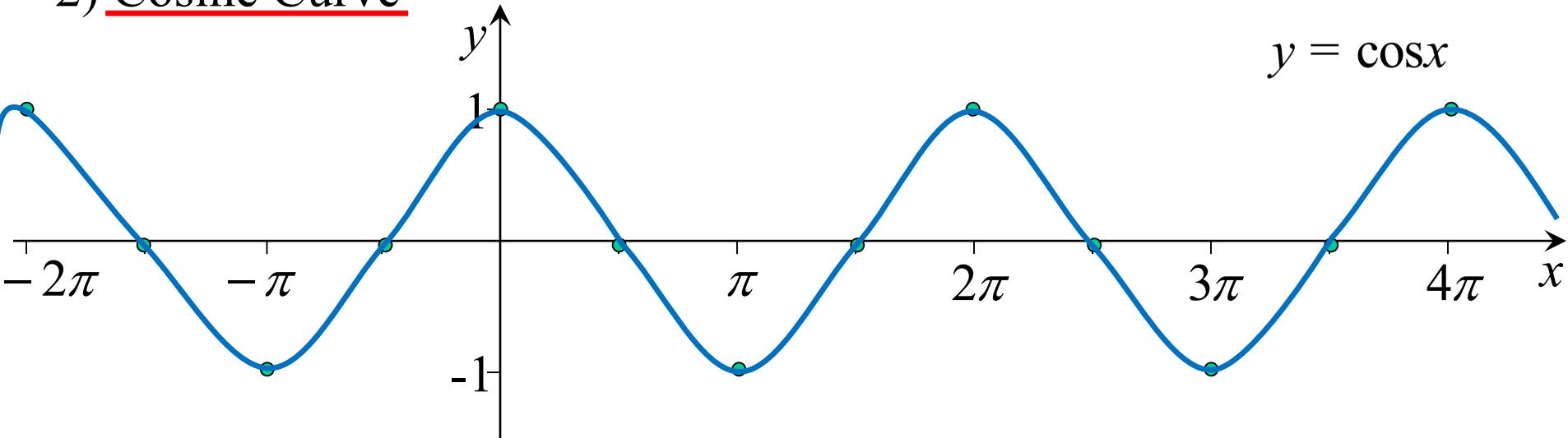
domain : all real x

range : $-1 \le y \le 1$

even function $\Rightarrow \cos(-x) = \cos x$

period $= 2\pi$

amplitude $= 1$

$$\cos x = \sin\left(\frac{\pi}{2} - x\right)$$

1. reflect sinx in the y-axis

2. shift right $\dfrac{\pi}{2}$ units

3) Tangent Curve

$y = \tan x$
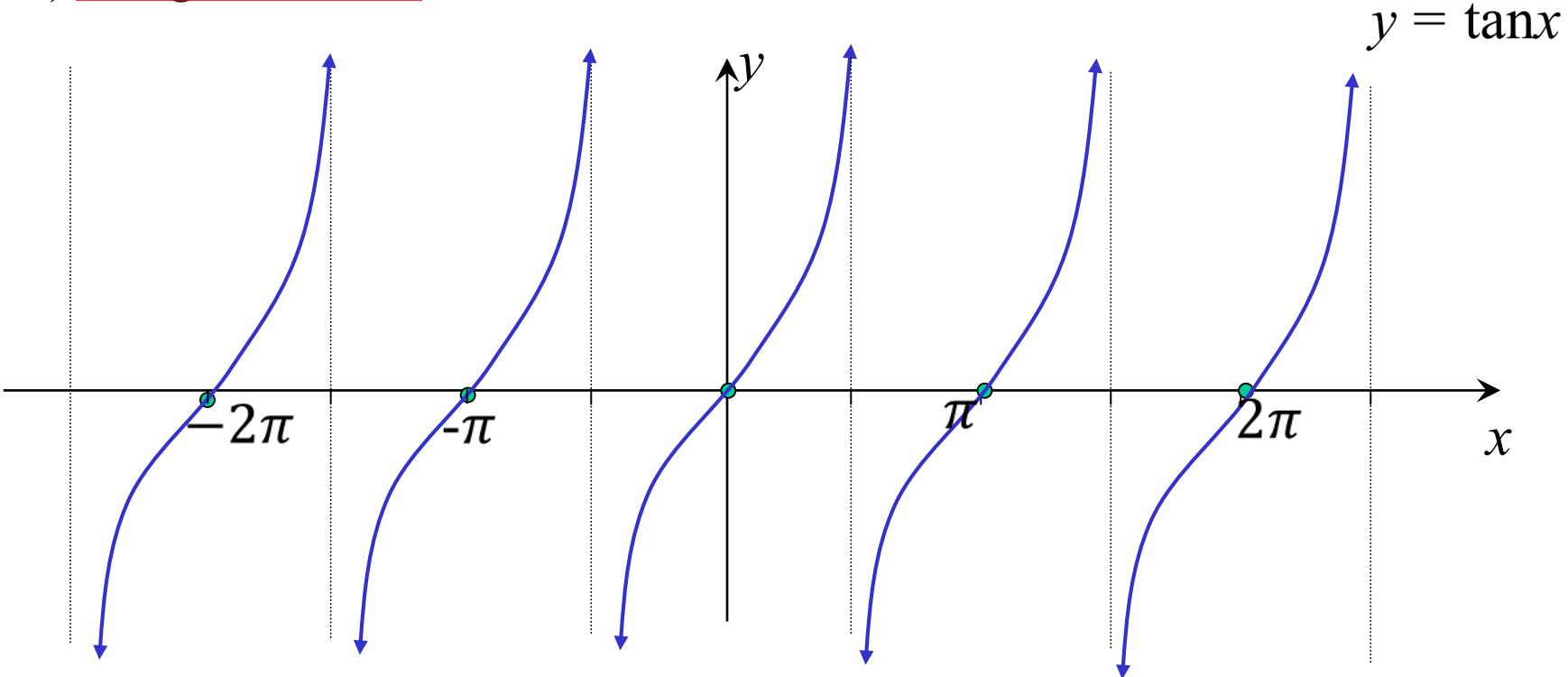
domain: all real x except $x = \dfrac{\pi}{2} + \pi k$

where k is an integer

range: all real y

odd function $\Rightarrow \tan(-x) = -\tan x$

period $= \pi$

4) <u>Cosecant Curve</u>

$y = \text{cosec}x$

$$y = \text{cosec}x = \frac{1}{\sin x}$$
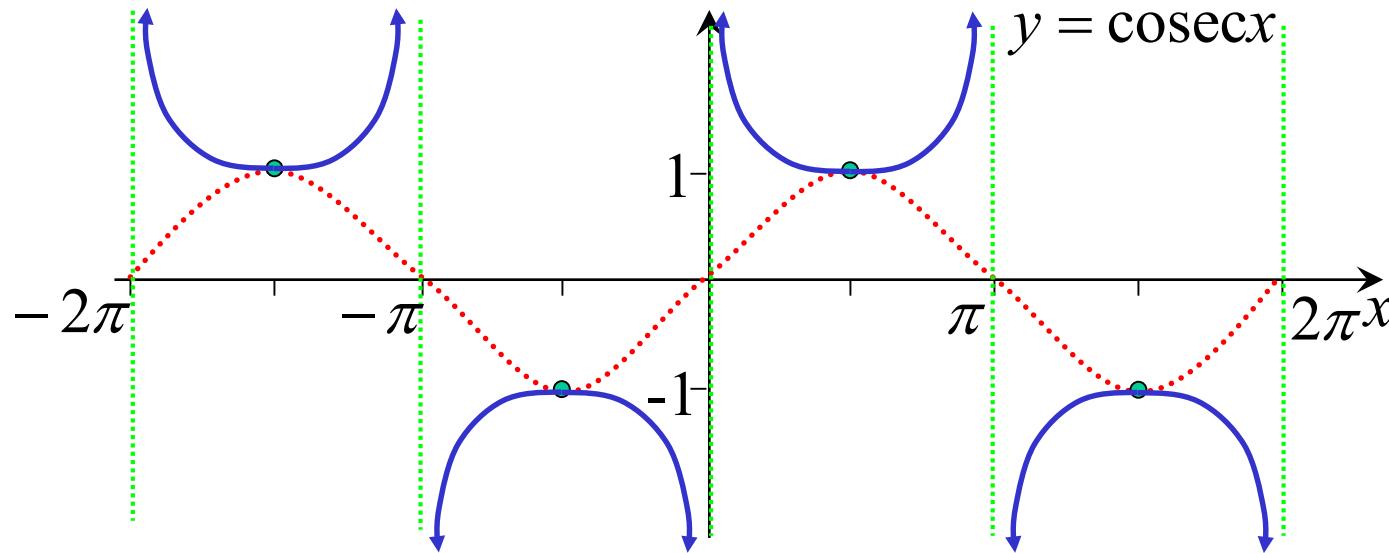
1. basic curve y = sinx

2. reciprocal graph ⇒ x intercepts become asymptotes

$$\Rightarrow \quad \frac{1}{1} = 1$$

$$\Rightarrow \quad < 1 \text{ becomes} > 1$$

Exercise 11J; 2 to 15