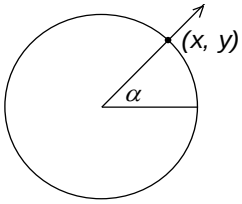
Graphs of Sine and Cosine Functions
§2.1 (Day 1)

Find:
sin 30 =
cos 30 =



$(x, y) = (\cos \alpha, \sin \alpha)$

$\sin \alpha =$	$\csc \alpha =$
$\cos \alpha =$	$\sec \alpha =$
$\tan \alpha =$	$\cot \alpha =$

Example 1
Find the exact value of each trig function.

a. $\sin 60$

b. $\cos \frac{\pi}{4}$

c. $\tan \frac{\pi}{6}$

d. $\sec 0$

Example 2

Find the coordinates of the given point after it has been moved (translated) $\frac{\pi}{6}$ units right and 2 units up.

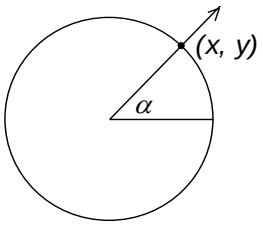
$(\frac{\pi}{2}, 3)$

Example 3
Determine the point that lies midway between the two given points.

$(\frac{\pi}{4}, 0)$ $(\frac{\pi}{2}, -3)$

Pg 121, 1-10 all, 12-42 even

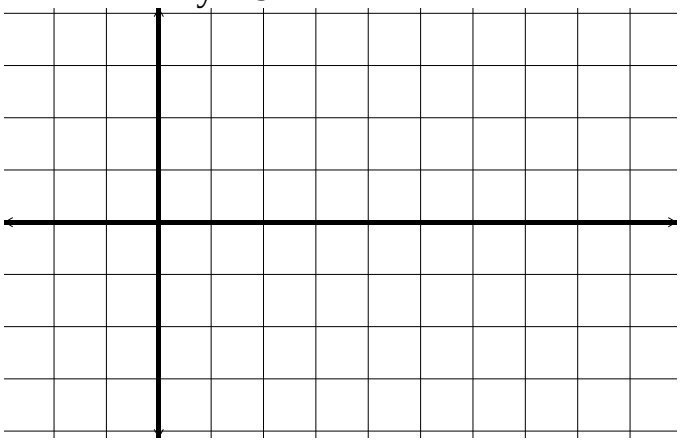
Graphs of the Sine and Cosine Functions
§2.1 (Day 2)



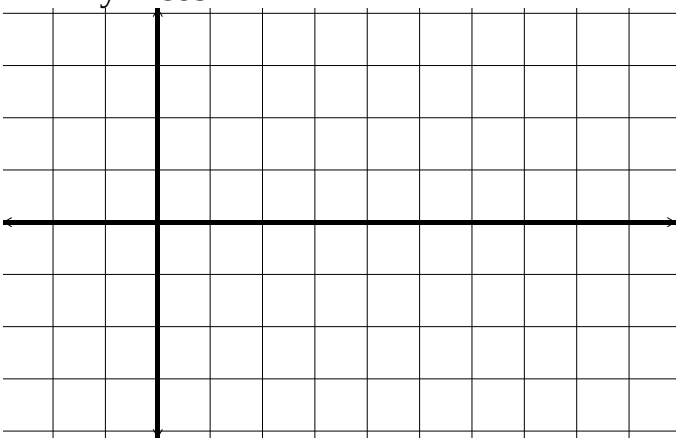
$(x, y) = (\cos \alpha, \sin \alpha)$

Graph each.

y = sin x



y = cos x

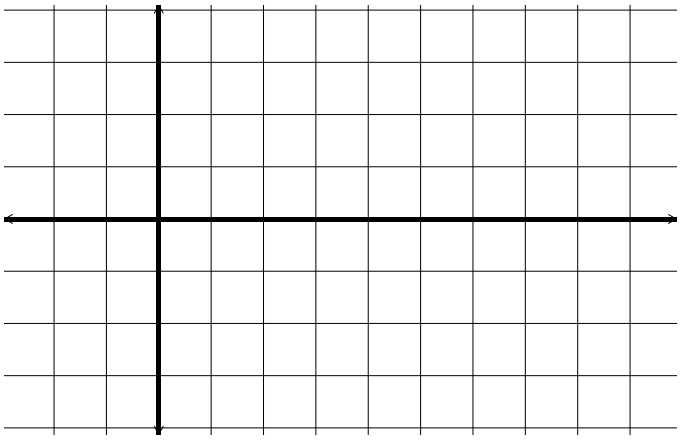


Graphing Functions

y = **A** sin or cos (x – **C**) + **D**

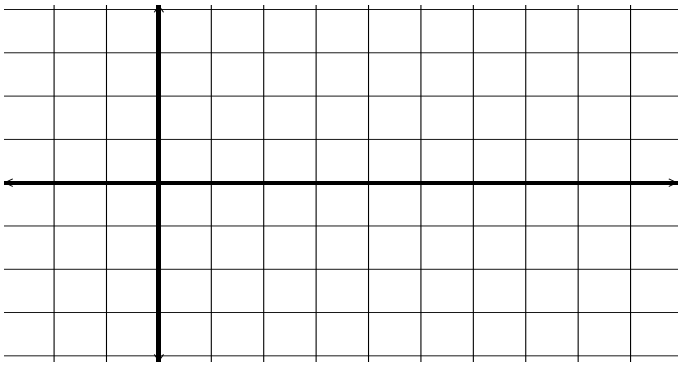
Example 1

Graph $y = \sin(x + \pi)$



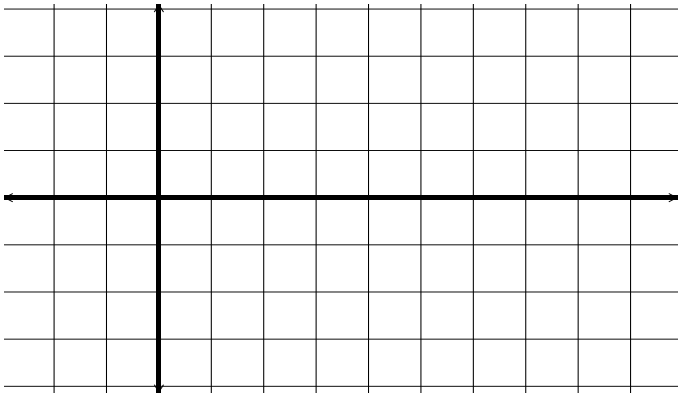
Example 2

Graph $y = -2\cos(x - \frac{\pi}{2})$



Example 3

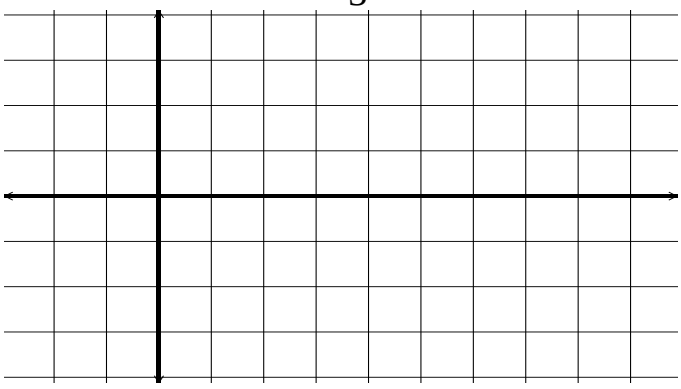
Graph $y = 2\sin(x + \frac{\pi}{2}) + 1$



**Look at #43 on Pg 122.

Example 4

Graph $y = -\cos(x + \frac{\pi}{3})$

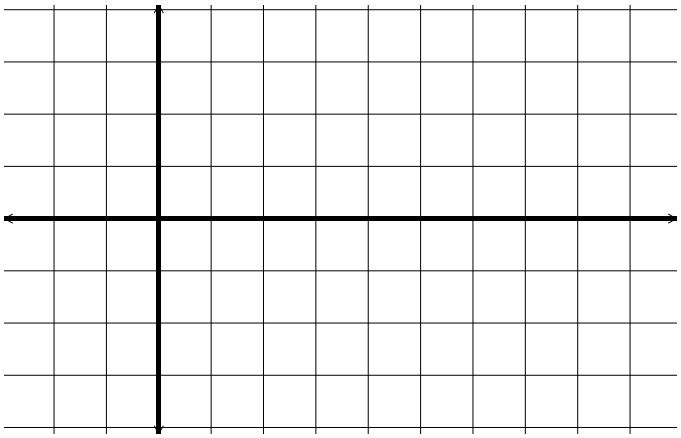


Pg 122, 43-69 odds, 83, 85

The General Sine/Cosine Wave
§2.2

Compare each.

$y = \sin x$ $y = \sin (2x)$



$y = A \sin (B[x - C]) + D$

Period = $\frac{2\pi}{B}$

Example 1

Find the period of each.

a. $y = \cos(\frac{\pi}{2}x)$ b. $y = 2\sin(3[x + \frac{\pi}{3}]) + 1$ c. $y = -\sin(2x - \pi) - 1$

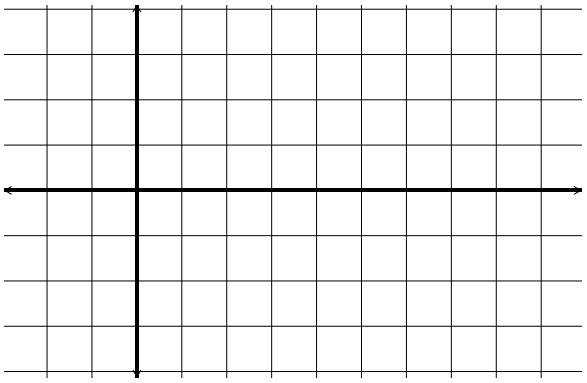
Example 2

Determine the amplitude, period, and phase shift for each.

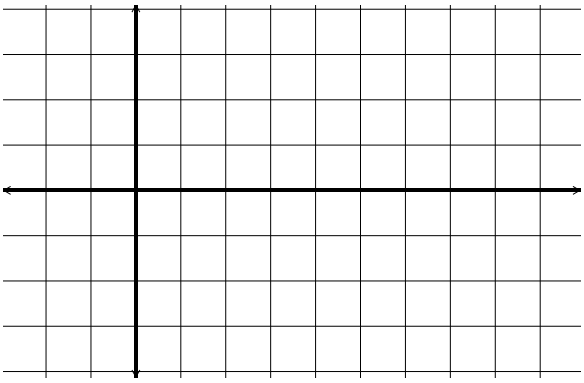
a. $y = 3\sin(x + \frac{\pi}{4})$ b. $y = -\cos(3x) + 1$ c. $y = 2\cos(3x + \pi) - 1$

Example 3
Graph each.

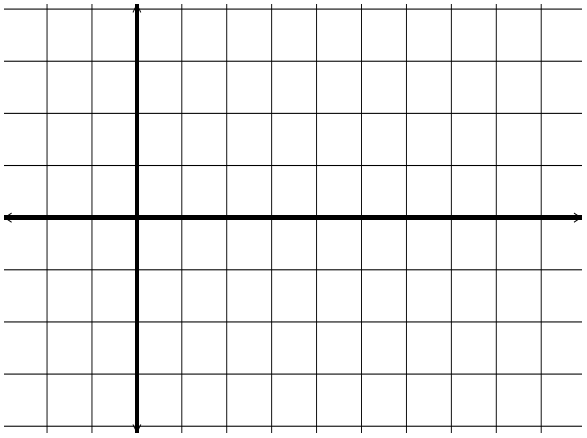
a. $y = 2\sin(x - \pi)$



b. $y = 3\cos(2x + \pi)$



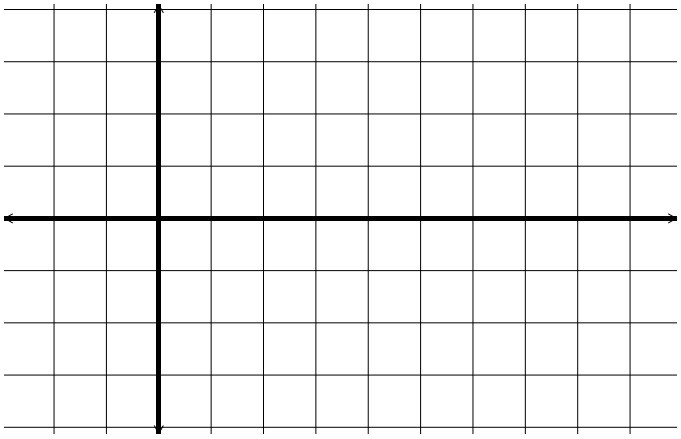
c. $y = -\sin(\frac{1}{2}x + \frac{\pi}{2})$



Pg 133, 1, 4, 7, ….28

The Graphs of Tangent
§2.3 (Day 1)

Graph $y = \tan x$ remember $\tan\alpha = \frac{y}{x}$



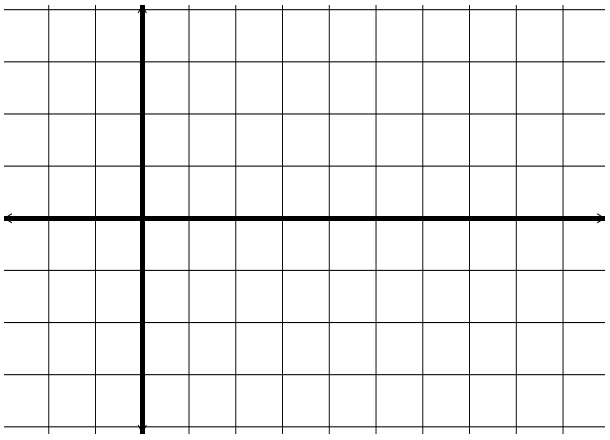
Vertical Asymptote – a vertical line that a graph approaches, but never intersects.

Period $= -\frac{\pi}{2} < Bx < \frac{\pi}{2}$

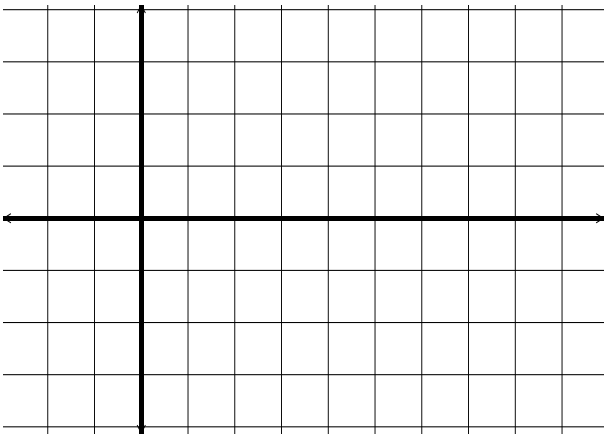
$= \frac{\pi}{B}$

Example 1
Graph each.

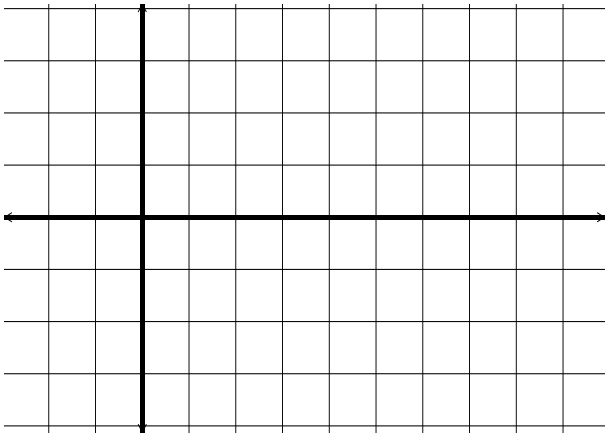
a. $y = \tan 3(x)$



b. $y = \frac{1}{2}\tan(3x - \frac{\pi}{2}) + 1$



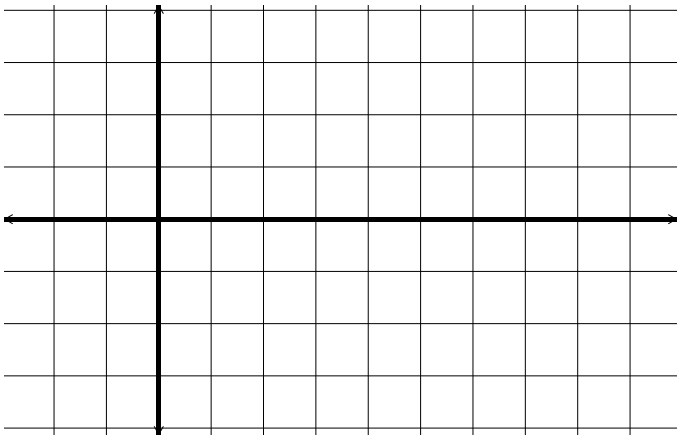
c. $y = 2\tan(2[x + \frac{\pi}{4})$



Pg 146, 1-5,13,15,21,25,29-37 odd

The Graphs of Cotangent
§2.3 (Day 2)

Graph $y = \cot x$ remember $\cot \alpha = \frac{x}{y}$



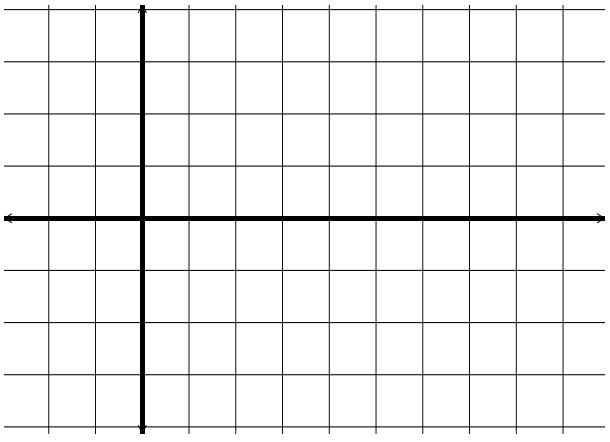
Vertical Asymptote – a vertical line that a graph approaches, but never intersects.

Period $= 0 < Bx < \pi$

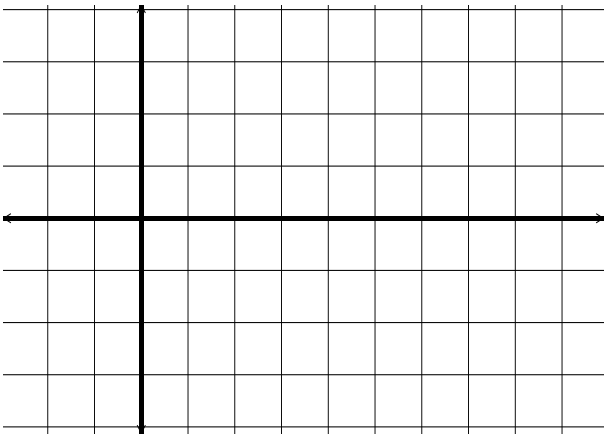
$= \frac{\pi}{B}$

Example 1
Graph each.

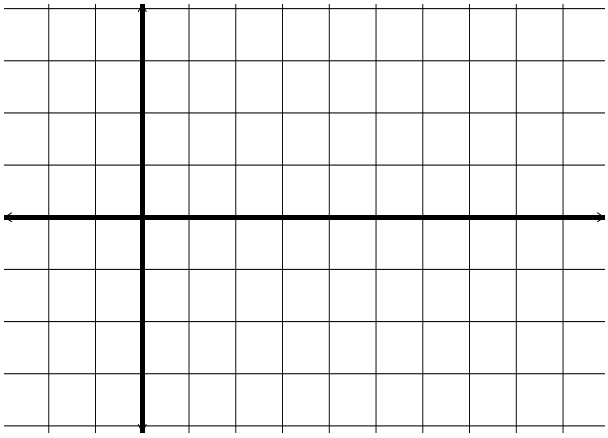
a. $y = 5\cot x$



b. $y = 3\cot(2[x + \frac{\pi}{4}])$



c. $y = \frac{1}{4}\cot(4x - \frac{\pi}{2}) + 2$



Pg 146, 7-11,17,19,23,27,39-45 odd