Precalculus
Name_____

Graphing Trig Functions Notes

Date_____ Period____

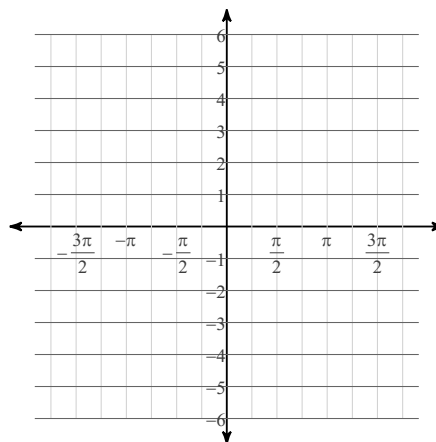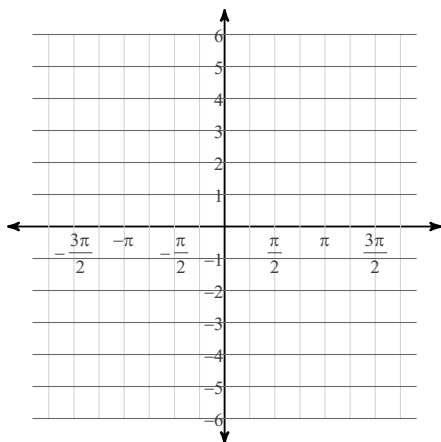**Find the amplitude, the period in radians, the minimum and maximum values, and two vertical asymptotes (if any). Then sketch the graph using radians.**
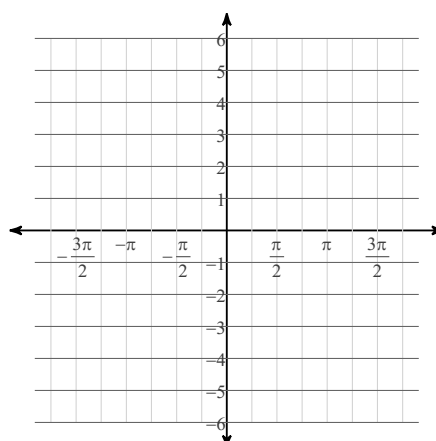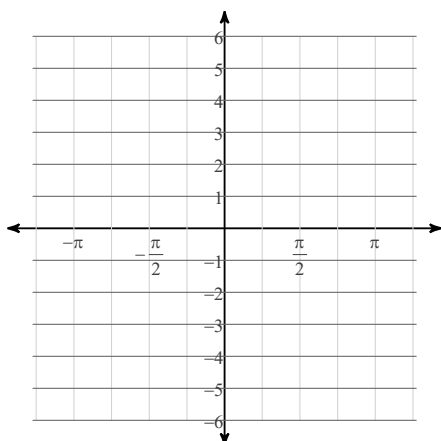
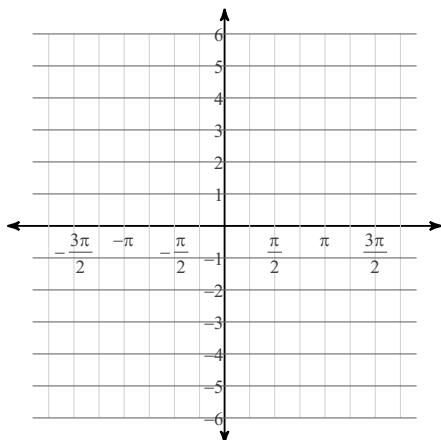1) $y = \sin \theta$

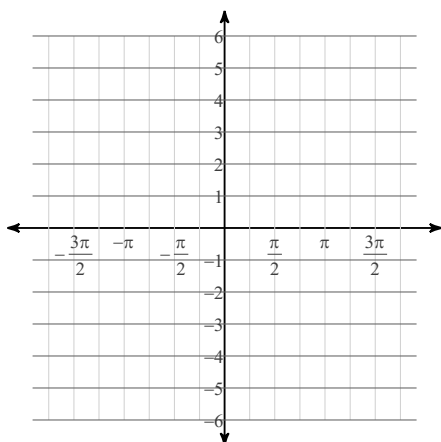2) $y = \cos \theta$

3) $y = \tan \theta$

4) $y = 2\sin \theta$

-1-

Find the amplitude, the period in radians, the vertical shift, and the minimum and maximum values. Then sketch the graph using radians.
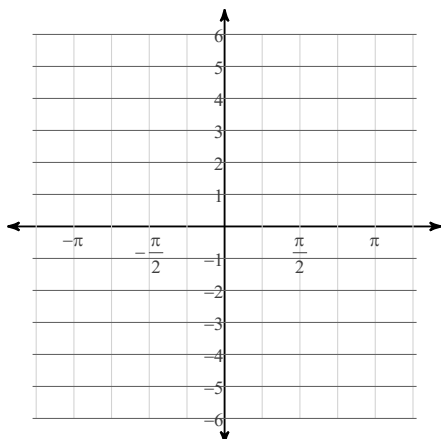
5) $y = \cos \theta + 2$

Find the amplitude, the period in radians, the phase shift in radians, and the minimum and maximum values. Then sketch the graph using radians.

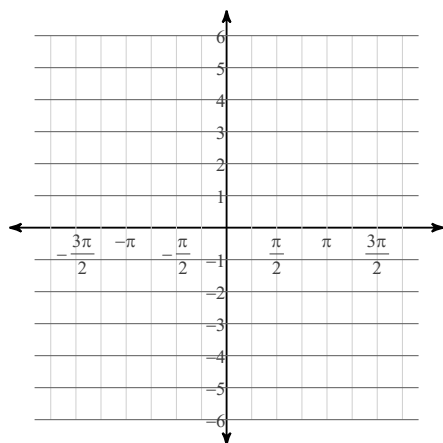6) $y = \sin\left(\theta - \dfrac{5\pi}{4}\right)$

Find the amplitude, the period in radians, the phase shift in radians, the vertical shift, the minimum and maximum values, and two vertical asymptotes (if any). Then sketch the graph using radians.

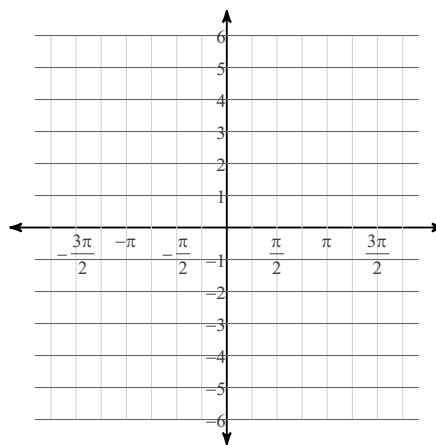7) $y = \tan\left(\theta + \dfrac{3\pi}{2}\right) - 2$

Find the amplitude, the period in radians, the phase shift in radians, and the vertical shift. Then sketch the graph using radians.

8) $y = 1 + \dfrac{1}{2} \cdot \sin\left(\theta + \dfrac{\pi}{4}\right)$

9) $y = 3\cos\left(\theta + \dfrac{7\pi}{4}\right) - 2$

Use identities to find the value of each expression.

10) If $\cos\theta = -0.53$, find $\sin\left(\dfrac{\pi}{2} - \theta\right)$.

11) If $\sin(-\theta) = -0.54$, find $\cos\left(\theta - \dfrac{\pi}{2}\right)$.

12) If $\csc\left(\dfrac{\pi}{2} - \theta\right) = 1.24$, find $\sec\theta$.

13) If $\cot\left(\dfrac{\pi}{2} - \theta\right) = 1.33$, find $\tan\theta$.

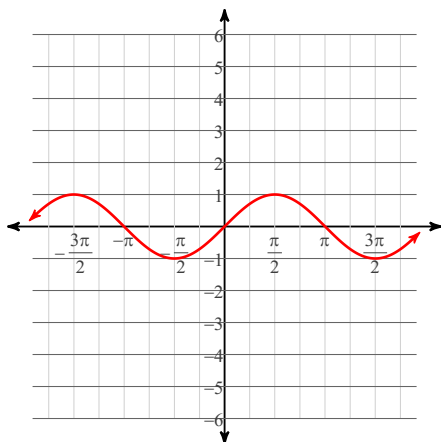**Provide a counterexample to disprove the following statements.**

14) $\tan(\theta + 180) = \tan -\theta$

15) $\cos(90 + \theta) = \sin\theta$

Name_____

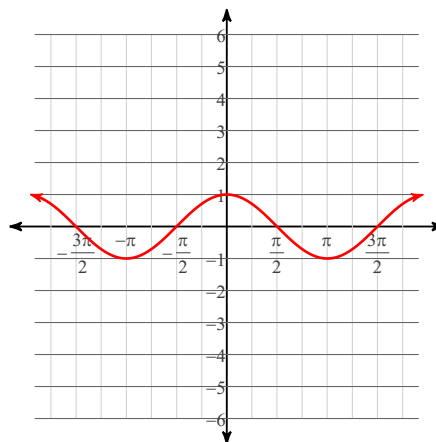# Graphing Trig Functions Notes

Date_____ Period_____

Find the amplitude, the period in radians, the minimum and maximum values, and two vertical asymptotes (if any). Then sketch the graph using radians.
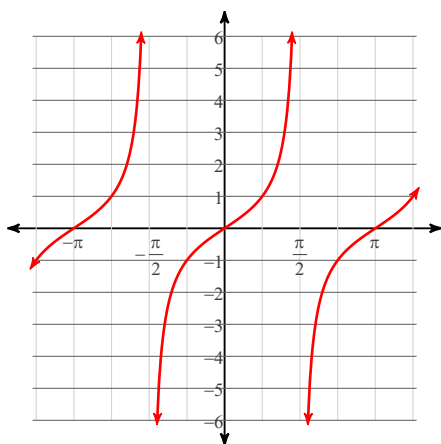
1) $y = \sin \theta$

Amplitude: 1
Period: 2π
Min: -1
Max: 1
Vert asym: None

2) $y = \cos \theta$

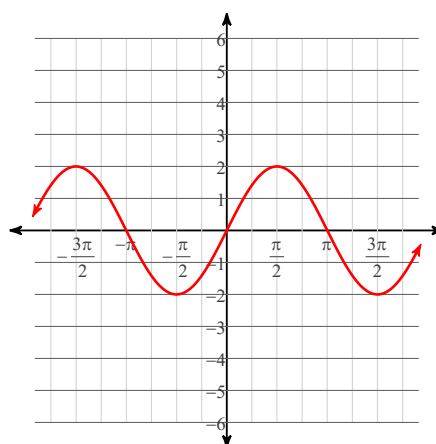Amplitude: 1
Period: 2π
Min: -1
Max: 1
Vert asym: None

3) $y = \tan \theta$

Amplitude: None
Period: π
Min: None
Max: None
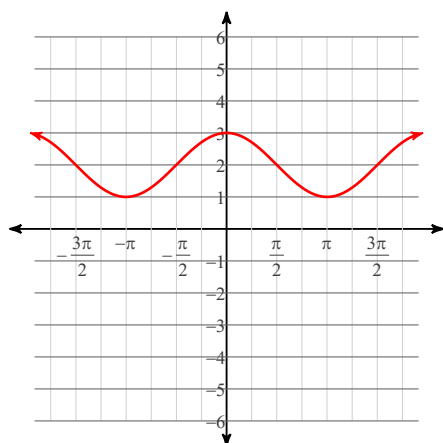
Vert asym: $x = \dfrac{\pi}{2}$

$x = -\dfrac{\pi}{2}$

4) $y = 2\sin \theta$

Amplitude: 2
Period: 2π
Min: -2
Max: 2
Vert asym: None

Find the amplitude, the period in radians, the vertical shift, and the minimum and maximum values. Then sketch the graph using radians.
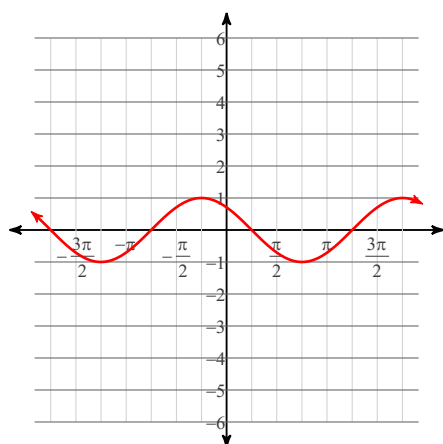
5) $y = \cos \theta + 2$

Amplitude: 1
Period: 2π
Vert. shift: Up 2
Min: 1
Max: 3

Find the amplitude, the period in radians, the phase shift in radians, and the minimum and maximum values. Then sketch the graph using radians.
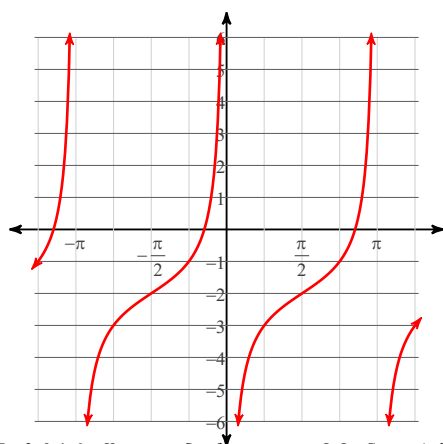
6) $y = \sin\left(\theta - \dfrac{5\pi}{4}\right)$

Amplitude: 1
Period: 2π

Phase shift: Right $\dfrac{5\pi}{4}$

Min: -1
Max: 1

Find the amplitude, the period in radians, the phase shift in radians, the vertical shift, the minimum and maximum values, and two vertical asymptotes (if any). Then sketch the graph using radians.
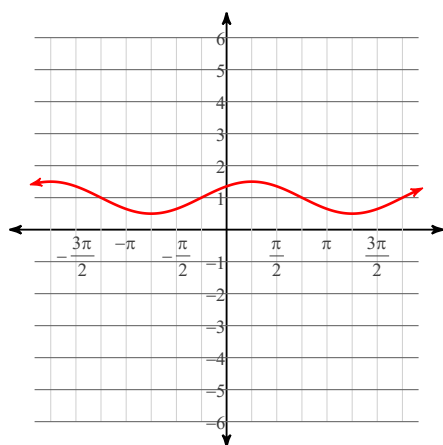
7) $y = \tan\left(\theta + \dfrac{3\pi}{2}\right) - 2$

Amplitude: None
Period: π

Phase shift: Left $\dfrac{3\pi}{2}$

Vert. shift: Down 2
Min: None
Max: None
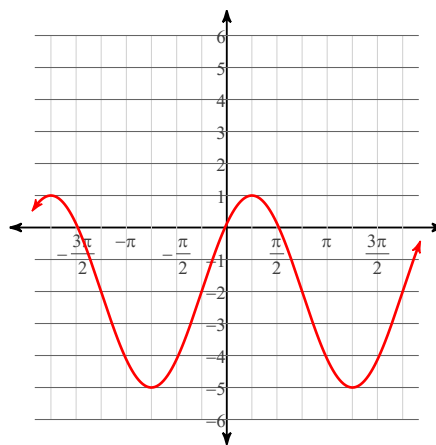Vert asym: $x = -\pi$
$\qquad\qquad x = -2\pi$

Find the amplitude, the period in radians, the phase shift in radians, and the vertical shift. Then sketch the graph using radians.

8) $y = 1 + \dfrac{1}{2} \cdot \sin\left(\theta + \dfrac{\pi}{4}\right)$

Amplitude: $\dfrac{1}{2}$

Period: 2π

Phase shift: Left $\dfrac{\pi}{4}$

Vert. shift: Up 1

9) $y = 3\cos\left(\theta + \dfrac{7\pi}{4}\right) - 2$

Amplitude: 3

Period: 2π

Phase shift: Left $\dfrac{7\pi}{4}$

Vert. shift: Down 2

Use identities to find the value of each expression.

10) If $\cos\theta = -0.53$, find $\sin\left(\dfrac{\pi}{2} - \theta\right)$.

-0.53

11) If $\sin(-\theta) = -0.54$, find $\cos\left(\theta - \dfrac{\pi}{2}\right)$.

0.54

12) If $\csc\left(\dfrac{\pi}{2} - \theta\right) = 1.24$, find $\sec\theta$.

1.24

13) If $\cot\left(\dfrac{\pi}{2} - \theta\right) = 1.33$, find $\tan\theta$.

1.33

Provide a counterexample to disprove the following statements.

14) $\tan(\theta + 180) = \tan -\theta$

15) $\cos(90 + \theta) = \sin\theta$