

1. Fill in the following table by listing the values for sine and cosine at the given t values.

	0	$\frac{\pi}{2}$	π	$\frac{3\pi}{2}$	2π
$\cos(t)$					
$\sin(t)$					

2. Fill in the following table.

	Definition	Domain	Range	Period	Max/Min
$\cos(t)$	N/A				
$\sin(t)$	N/A				
$\tan(t)$					
$\cot(t)$					
$\sec(t)$					
$\csc(t)$					

3. (a) Fill in the following table by listing the values for sine and cosine at the given t values.

	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$
$\cos(t)$			
$\sin(t)$			

- (b) List all angles that can be re-written as a sum or difference of $\pi/6$, $\pi/4$, and $\pi/3$.
- (c) Determine the value of the following trigonometric functions using a **sum or difference formula**.
- i. $\sin\left(\frac{7\pi}{12}\right)$ ii. $\cos\left(\frac{5\pi}{12}\right)$ iii. $\sin\left(-\frac{\pi}{12}\right)$ iv. $\cos\left(-\frac{\pi}{12}\right)$
- (d) Determine the value of the following trigonometric functions using a **half-angle formula**.
- i. $\sin\left(\frac{7\pi}{12}\right)$ ii. $\cos\left(\frac{5\pi}{12}\right)$ iii. $\sin\left(-\frac{\pi}{12}\right)$ iv. $\cos\left(-\frac{\pi}{12}\right)$
- (e) Use the answers from (c) to calculate the following values.
- i. $\cos\left(\frac{7\pi}{12}\right)$ ii. $\sin\left(\frac{5\pi}{12}\right)$
- (f) Use the answers from (c) and (e) to calculate the following values.
- i. $\tan\left(\frac{7\pi}{12}\right)$ ii. $\cot\left(\frac{5\pi}{12}\right)$ iii. $\sec\left(-\frac{\pi}{12}\right)$ iv. $\csc\left(-\frac{\pi}{12}\right)$

4. Let $f(x) = 2 \sin(3\theta - \pi) + 1$.
- Determine the amplitude, period, and range of f
 - Write f as a cosine function; that is, find A , B , C , and D so that $f(x) = A \cos(Bx+C)+D$.
5. Use your knowledge of the graphs of \sin , \cos and \tan to sketch the following. In addition, state the period and amplitude of each.
- $y = \cos(x - 2\pi)$
 - $y = -\sin(2x - \pi)$
 - $y = -\tan(x + \pi/4)$
6. Suppose a circle has radius 9.
- Find the length of the arc on the circle, which is intercepted by a central angle of 75° .
 - What is the area of the circular sector (or wedge) formed by the central angle of 75° ?
7.
 - Find the length of an arc formed by an angle of $7\pi/6$ radians in a circle of radius 3
 - Find the area of a sector (or wedge) formed by an angle of 130° in a circle of radius 3
8. Given that $\sin t = 1/3$ and that $\pi/2 \leq t \leq \pi$, find the value of the following.
- $\sin(-t)$
 - $\csc(-t)$
 - $\cos(t)$
 - $\sec(t)$
9. What is the domain of the function $f(x) = \tan(2x)$?
10. Evaluate the six basic trig functions at $t = 17\pi/6$.
11. Find all values of t in the interval $[0, 2\pi]$ that satisfy the equation $2 \sin(t) + \sqrt{3} = 0$.
12. Given that $\sec \theta = \frac{13}{5}$ for $0 \leq \theta \leq \frac{\pi}{2}$, evaluate the remaining five trig functions at θ .
13. Find a sine function AND a cosine function whose graph matches the given curve.

