Homework grades this week:

01: **Read** sections 5.3 and 5.4 in your textbook (and 5.2 if you haven't already) **by Monday** 22 Aug.

02: Complete at least 45 minutes of exercises on **Khan Academy** related to sections 5.2, 5.3, and 5.4 **by Friday**, 26 Aug; in addition, complete "Mastery Challenges" as often as they become available to you.

03: **Textbook problems**, mostly be completed in class and due **Friday, 26 Aug**.
- 5.2: #1-6 all; 15-41 odd; 59-75 odd (NO CALCULATOR!)
- 5.3: #1-35 odd; 37-48 all (NO CALCULATOR!); 61-68 all (NO CALCULATOR!)
- 5.4: #13-22 all (NO CALCULATOR!)

Upcoming:

01: **Read** sections 5.5 and 5.6 by **Monday, 29 Aug**

02: Complete 45 minutes of **Khan Academy** related to sections 5.1-5.6 by **Friday, 2 Sept**

03: **Textbook problems**, mostly be completed in class and due **Friday, 2 Sept**
- 5.3 #69-80 all
- 5.4 #91-94 all
- 5.5 #1-45 odd
- 5.6 #1-39 odd

Test #1 - Next week! Friday, 2 September
Expect another **quiz** before the test.

Khan Academy exercises for section 5.1:

arc measure

multiple units word problems

arc length

convert units (metrics)

radians & degrees

convert units word problems (metrics)

radians & arc length

convert units (US customary)

complementary & supplementary angles

convert units word problems (US customary)

Khan Academy exercises for section 5.2:

Trigonometric ratios in right triangles

Solve for a side in right triangles

Solve for an angle in right triangles

Right triangle word problems

Khan Academy exercises for section 5.3-5.4:

Trig values of special angles

Use the Pythagorean identity

Khan Academy Exercises for 5.5-5.6:

Midline of sinusoidal functions from graph

Amplitude of sinusoidal functions from graph

Period of sinusoidal functions from graph

Midline of sinusoidal functions from equation

Amplitude of sinusoidal functions from equation

Period of sinusoidal functions from equation
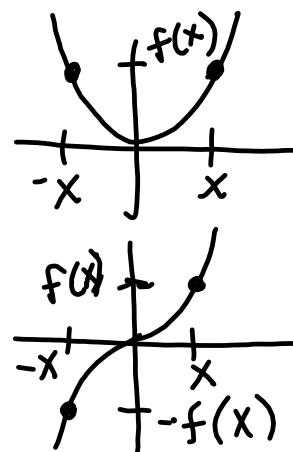
Graph sinusoidal functions

A function is a relation in which each input is mapped to a unique output.

<u>Even/Odd Functions</u>

A function f is <u>even</u> if $\quad f(-x) = f(x)$

Symmetric w.r.t. y-axis

A function f is <u>odd</u> if $\quad f(-x) = -f(x)$

Symmetric w.r.t. origin

Odd-Even Identities

$$\cos(-x) = \cos x \quad , \quad \sin(-x) = -\sin x \quad , \quad \tan(-x) = -\tan x$$
$$\sec(-x) = \sec x \quad , \quad \csc(-x) = -\csc x \quad , \quad \cot(-x) = -\cot x$$
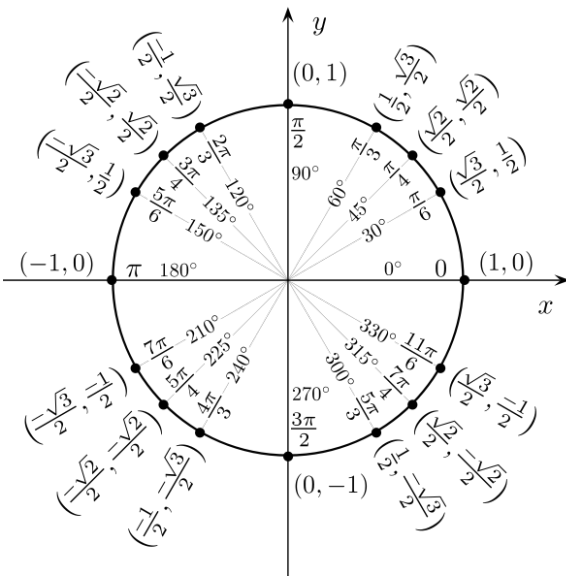
Domain/Range

The <u>domain</u> of a function is the set of all input values for which the function is defined (all the x-values that "make sense" when plugged into the function)

The <u>range</u> of a function is the output of the domain (all the y-values that the function takes on)

Periodicity

The <u>period</u> of a function is the smallest interval over which the function repeats itself

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Determining domain, range and period for the Sine & Cosine functions

		$sin(x)$	$cos(x)$
Domain		ℝ all real numbers $(-\infty, \infty)$	$(-\infty, \infty)$
Range		$[-1, 1]$	$[-1, 1]$
Period		$2\pi = 360°$	2π

(Circle diagram with unit circle values, degree and radian measures, and coordinate points)

Graphs of the sine and cosine functions

y=sinx

domain: ℝ

range: $[-1, 1]$

period: 2π

odd $\left(\sin(-x) = -\sin x\right)$

(Graph of y = sin x)

4
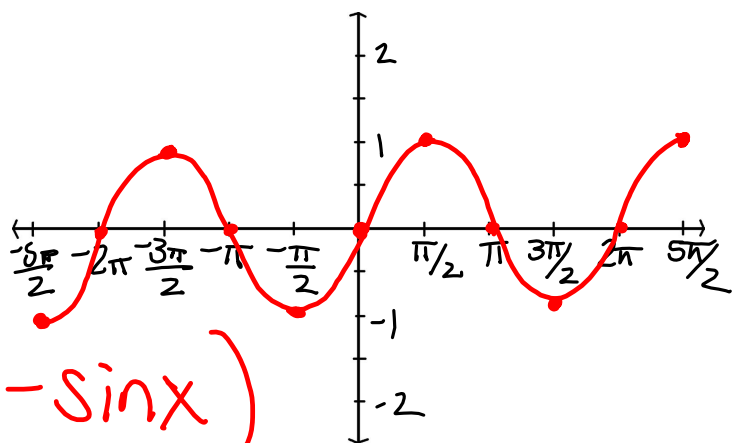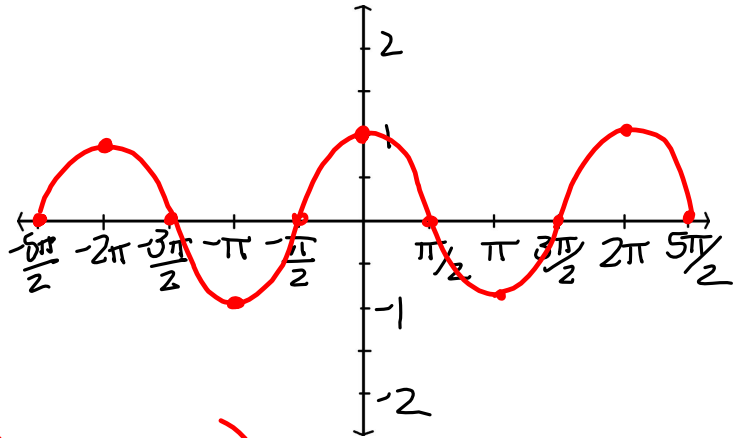
y=cosx

domain:
(-∞,∞)
range:
[-1,1]
period: 2π
even (cos(-x)=cosx)

Domain/Range/Period/Graphs of the other 4 Trig functions?

Function	Domain	Range	Period
$y = \sin x$	$(-\infty, \infty)$	$[-1,1]$	2π
$y = \cos x$	$(-\infty, \infty)$	$[-1,1]$	2π
$y = \csc x = \frac{1}{\sin x}$	$\{x \mid x \text{ is not an integer multiple of } \pi\}$	$(-\infty, -1] \cup [1, \infty)$	2π
$y = \sec x = \frac{1}{\cos x}$	$\{x \mid x \text{ is not an odd multiple of } \frac{\pi}{2}\}$	$(-\infty, -1] \cup [1, \infty)$	2π
$y = \tan x = \frac{\sin x}{\cos x}$	$\{x \mid x \text{ is not an odd multiple of } \frac{\pi}{2}\}$	$(-\infty, \infty)$	π
$y = \cot x = \frac{\cos x}{\sin x}$	$\{x \mid x \text{ is not an integer multiple of } \pi\}$	$(-\infty, \infty)$	π

Why?