Honors Trigonometry Name _____

Convince *me* that **you** understand the concept. Per _____ Date _____

CHAPTER #3

I This section covers all of the first two pages of this exam. For *each* problem, supply **domain**, **range**, **amplitude**, **period** and **phase shift (including direction word)** and **draw** the graph *in the areas provided*. Be sure your drawing crosses or approaches the Y-axis. You may do the work for this exam *directly on thi*s exam paper rather than on the "newsprint" as usual. If you do work on newsprint be sure it is labeled with its problem number. **Indicate significant coordinates You *may* use decimals for your coordinate responses** (however you will probably spend more time using decimals than in not using decimals). Each problem in this section is worth 15 points.

A) $A(x) = 2\cos\left(\frac{2}{3}x - \frac{\pi}{6}\right) - 1$

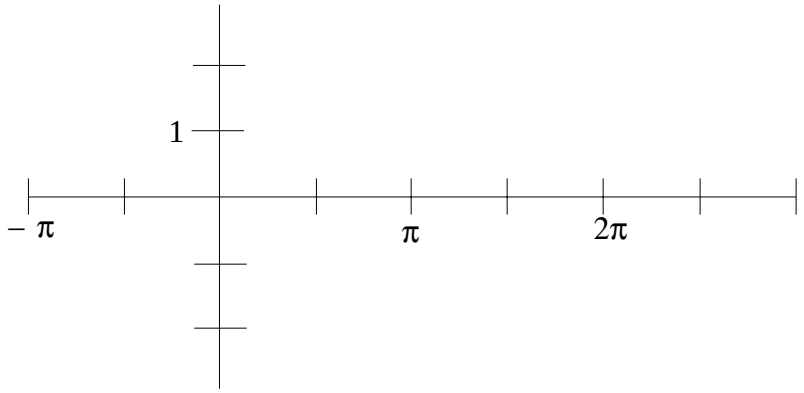
D_A

R_A

Per

Amp

P.S.



B) $B(x) = -\sin\left(\frac{3}{2}x + \frac{\pi}{2}\right)$

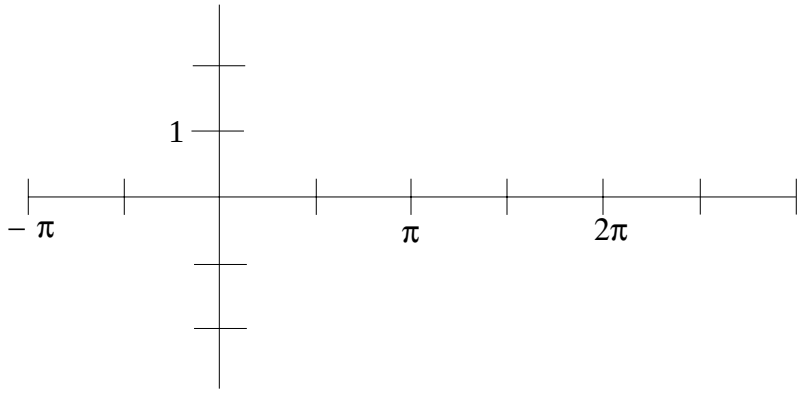
D_B

R_B

Per

Amp

P.S.



C) $C(x) = \csc\left(x - \frac{2\pi}{3}\right) - 1$

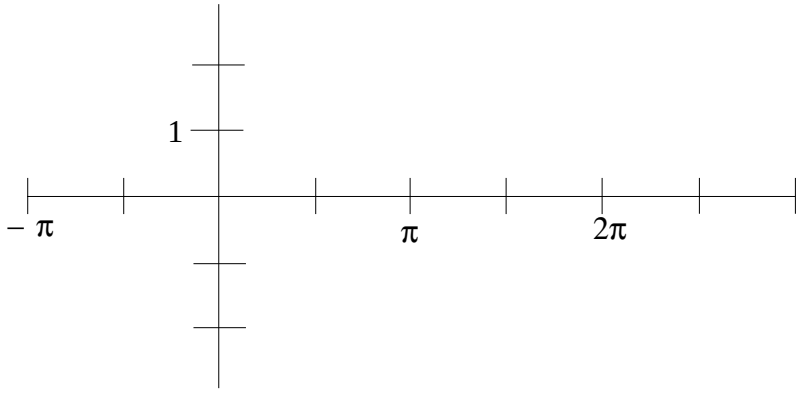
D_C

R_C

Per

Amp

P.S.



D) $D(x) = \tan\frac{4}{3}x$ x

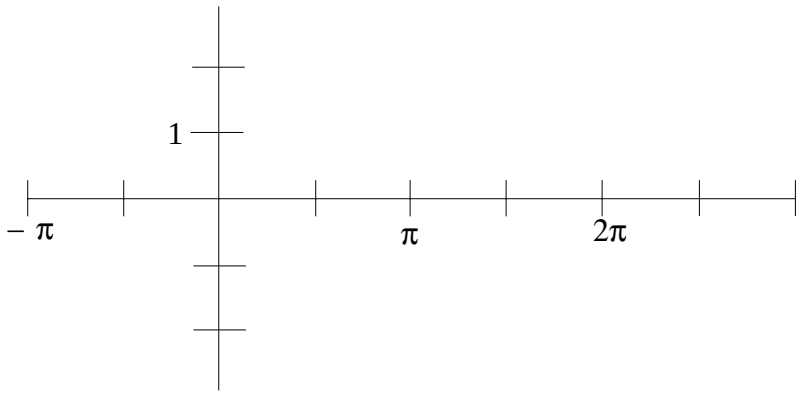
D_D

R_D

Per

Amp

P.S.



E) $E(x) = \sec\frac{2}{3}x$

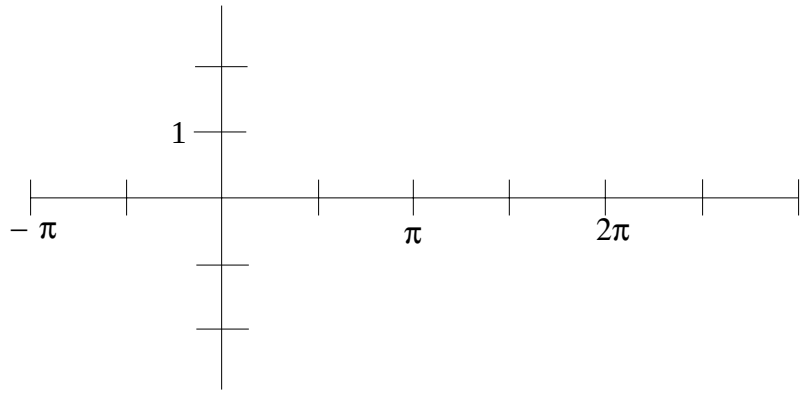
D_E

R_E

Per

Amp

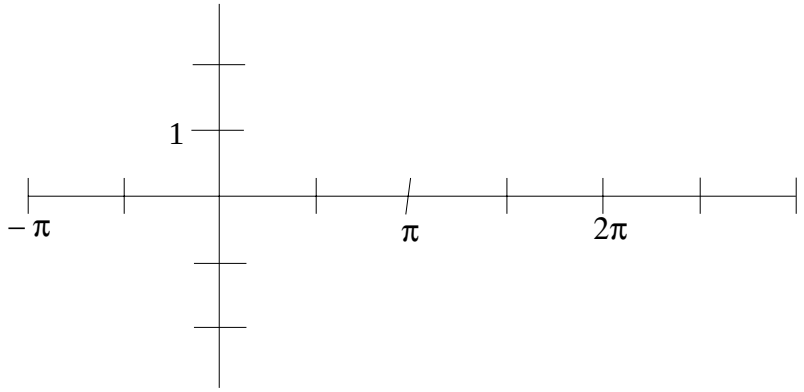
P.S.



II Draw a sketch of tan x and cot x on the supplied axis. (15 pts total)

Describe what must be done to tan x to make it coincide with cot x.

Prove that your changes would have the desired effect.



III Given P_1 starts at $\left(\frac{-1}{2}, \frac{\sqrt{3}}{2}\right)$ with $\omega_1 = \frac{\pi}{4}$ and P_2 starts at $\left(\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}\right)$ with $\omega_2 = \frac{\pi}{3}$

(10 pts tot)

A) Find t when the two points first concide.

B) Confirm that P_1 and P_2 do, in fact, have the same coordinates at the t found in part A.

EXTRA CREDIT ---------- 5 pts ----------

As you know, to prove a function has period "a" you must show that $f(x + a) = f(x)$.

Given $f(x) = \cos 2x \sin x + \sin 2x \cos x$. Prove $f(x)$ has period $\frac{2\pi}{3}$.