

Sinusoidal Functions Unit Summary

Note Title

09/06/2010

- Periodic Functions
- Transformational Form: $\frac{1}{\text{amp}}(y-SA) = \sin\left(\frac{360}{\text{per}}(x-PS)\right)^\circ$
- Function Form: $y = \text{amp} \cdot \sin\left(\frac{360}{\text{per}}(x-PS)\right)^\circ + SA$
- Parameters
 - ↳ Amplitude, Sinusoidal axis, period, Phase shift
 - ↳ radius
 - ↳ middle
 - ↳ Full revolution
 - ↳ "x" part of starting point
- Transformations
 - ↳ VT (SA), VS (amp), HT (PS), HS ($\frac{\text{per}}{360}$), reflection
- Applying Sin Fncs \Rightarrow word problems
- Graph to Equation
 - ↳ find the 4 parameters!
- Equation to Graph
- Other Sin Functions
 - ↳ $y = \sin x$ (on SA & going \uparrow)
 - ↳ $y = -\sin x$ (on SA & going \downarrow)
 - ↳ $y = \cos x$ (@ max & going \downarrow)
 - ↳ $y = -\cos x$ (@ min & going \uparrow)
- Solving Equation & k-notation
 - ↳ Graphically
 - ↳ ① Draw line ② Find the intersection point
 - ↳ ③ Determine period ④ Write in k-notation
 - ↳ Algebraically
 - ↳ need to find Primary & Secondary angle
 - ↳ Sin Rule: $\theta_2 = 180 - \theta_1$, | Cos Rule: $\theta_2 = 360 - \theta_1$
 - ↳ Find the period & write in k-notation
- Radians
 - ↳ $\frac{\theta_r}{\theta_d} = \frac{\pi}{180^\circ}$ (Degrees \Rightarrow Radians) | $\frac{\theta_d}{\theta_r} = \frac{180^\circ}{\pi}$ (Radians \Rightarrow Degrees)
 - ↳ $A = r \cdot \theta_r$ | $\theta_r = \frac{A}{r}$ | $r = \frac{A}{\theta_r}$

Should be able to know how to find all ways!