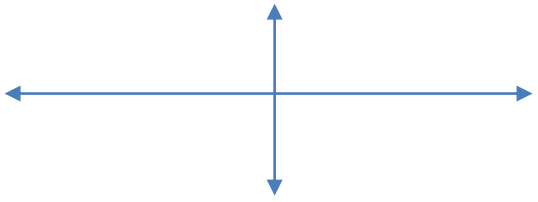
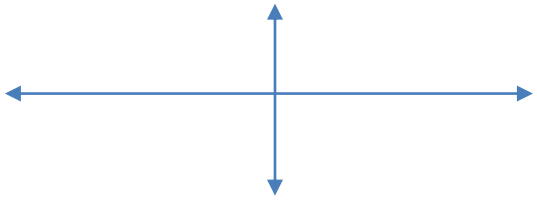
7.3: Amplitude and Vertical Shifts
"I WILL…
…identify all amplitude and vertical shifts"

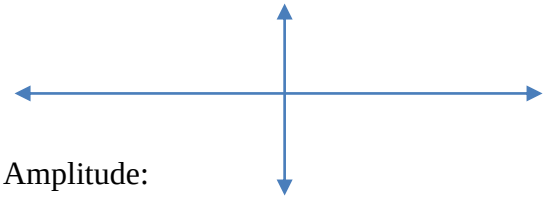
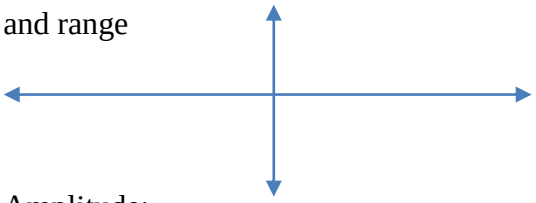
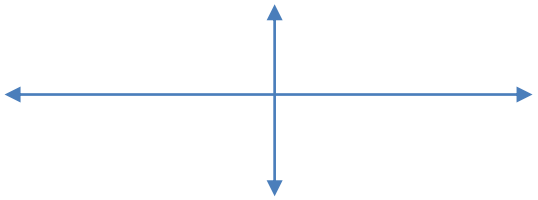
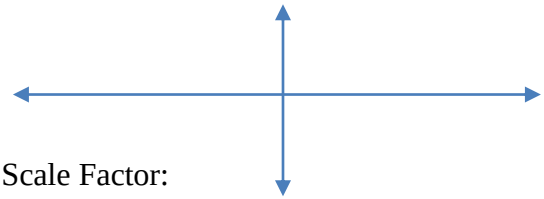
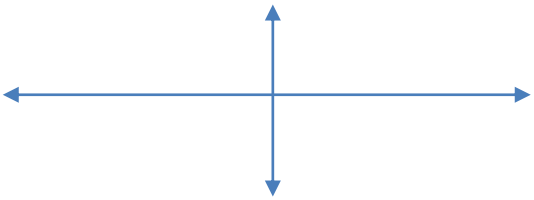
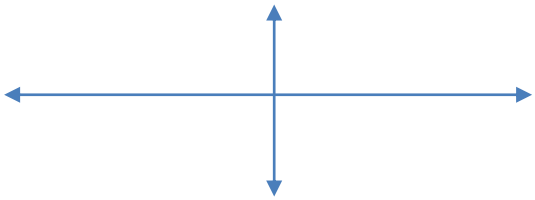
I. Transformation of Graph Equation

A. Equation: $y = A$ trig function $B(x - h) + k$
B. A is the amplitude
   1. Defined as how high the graph is
   2. Always positive; take the absolute value
   3. Also known as the scale factor
   4. Only Sine and Cosine functions have amplitude
C. B is the period
   1. Period is defined as how far it goes for a full cycle
   2. Frequency means the number of times you will see the graph during the regular period
   3. Sine and Cosine period equation is $\frac{2\pi}{b}$ where Tangent period equation is $\frac{\pi}{b}$
D. k is the vertical shift
   1. $+k$ is where graphs shifts up
   2. $-k$ is where graphs shifts down

II. Steps in Graphing

A. Understand the parent function
B. Determine the old points and apply the change
C. Plot points and graph

Ex 1: Graph $y = \sin x + 1$ and identify amplitude, period, vertical shift, domain, and range	Ex 2: Graph $y = 2\cos\theta - 1$ and identify amplitude, period, vertical shift, phase shift, domain, and range
	
Amplitude:	Amplitude:
Period:	Period:
Vertical Shift:	Vertical Shift:
Domain:	Domain:
Range:	Range:

Ex 3: Graph $y = \frac{1}{3} sin \frac{1}{2} t$ from [–2π, 2π] and identify amplitude, period, vertical shift, domain, and range  Amplitude: Period: Vertical Shift: Domain: Range:	Your Turn: Graph $y = -2\, sin\, 4t - 1$ from [–π/2, π/2] and identify amplitude, period, vertical shift, phase shift, domain, and range  Amplitude: Period: Vertical Shift: Domain: Range:
Ex 4: Graph $y = 2\tan x + 1$ from [0, π] and identify amplitude, period, vertical shift, domain, and range  Period: Vertical Shift: Domain: Range:	Ex 5: Graph $y = 1/2\, csc\, x + 1$ from [0, 2π] and identify scale factor, period, vertical shift, domain, and range  Scale Factor: Period: Vertical Shift: Domain: Range:
Ex 6: Graph $y = \cot x - 2$ from [0, π] and identify scale factor, period, vertical shift, domain, and range  Scale Factor: Period: Vertical Shift: Domain: Range:	Your Turn: Graph $y = -\sec x + 1$ from [0, 2π] and identify period, vertical shift, domain, and range  Scale Factor: Period: Vertical Shift: Domain: Range:

Assignment: Worksheet