## **Transformations of Trigonometric Functions**

C		r			
Generai	Equation	tor si	ne, cosir	ne, and	tangent.

Transformations for each letter:				
If $a$ is negative:	a =			
If $b$ is negative:	b =			
Formula for period of sine & cosine: Formula for period of tangent:	Frequency of sine & cosine:			
c =	d =			
<u>Transformations of</u> General Equation for sine, cosine, and tangent.	f Trigonometric Functions			
Transformations for each letter:				
If $a$ is negative:	a =			
If $b$ is negative:	b =			
Formula for period of sine & cosine: Formula for period of tangent:	Frequency of sine & cosine:			
c =	d =			

Vertical transformations, amplitude and n	nidline shift,	are letters	<i>,</i>	_		
Horizontal transformations, period and ph	nase shift, are	e letters, _				
Vertical reflections and the amplitude		to $y$ -values.				
Horizontal reflections and the period		to <i>x</i> -values, but	using the			
Midline shifts (vertical translations)	dline shifts (vertical translations) or to the $y$ -values.					
Phase shifts (horizontal translations)	or	to the $x$ -values, but using the				
Transformations must be done in the corr shift.	ect order: re	flections, amplitude,	period, phas	e shift, mic	lline	
EX. $f(\theta) = 2\sin\left(\frac{1}{2}\left(x - \frac{\pi}{2}\right)\right) + 4$		Parent $x \mid f(x)$	$\begin{array}{ c c c }\hline \textbf{Transformed table}\\\hline x & f(x)\\\hline \end{array}$			
a:						
b:						
period:						
c:						
d:						
Vertical transformations, amplitude and n	nase shift, are	e letters, _		-		
Vertical reflections and the amplitude						
Horizontal reflections and the period		to $x$ -values, but	using the			
Midline shifts (vertical translations)	or		to the $y$ -valu	ies.		
Phase shifts (horizontal translations)	or		to the $x$ -valu	es, but usi	ng the	
Transformations must be done in the corr shift.	ect order: re	flections, amplitude,	period, phase	e shift, mic	lline	
EX. $f(\theta) = 2\sin\left(\frac{1}{2}\left(x - \frac{\pi}{2}\right)\right) + 4$		Parent			rmed tal	
$(2) - 2 \sin \left(\frac{1}{2} \left(x - \frac{1}{2}\right)\right) + 4$		$x \mid f(x)$	<u>x)</u>	x	f(x)	
a:			_			
b:			$\dashv$			
period:			_			

c:

d: