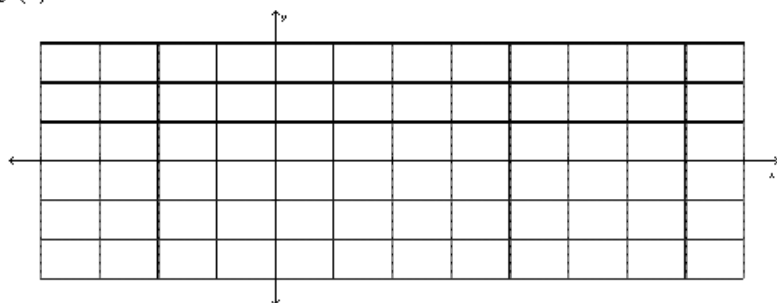


<b>Graphing the Tangent Function</b> Students will be able to find all the key points of the graphs of specific tangent functions and graph the functions.	Precalculus/Honors Precalculus
<div style="color: red; font-size: 1.5em; font-weight: bold; margin-bottom: 20px;">                     PERIOD:  <math>\frac{\pi}{6}</math> </div> <div style="color: red; font-size: 1.5em; font-weight: bold;">                     PERIOD:  <math>\frac{\pi}{1} = \pi</math> </div>	<p><math>f(x) = \tan x</math></p> <p>Graphing <math>y = A \tan(Bx - C) + D</math></p> <p>Steps for graphing <math>y = A \tan(Bx - C)</math></p> <ol style="list-style-type: none"> <li>1. Find two consecutive vertical asymptotes <span style="color: red; margin-left: 20px;"><math>\rightarrow Bx - C = -\frac{\pi}{2}</math></span>  <math display="block">\frac{-\pi}{2} &lt; Bx - C &lt; \frac{\pi}{2}</math> <span style="color: red; margin-left: 20px;"><math>Bx - C = \frac{\pi}{2}</math></span></li> <li>2. Find the <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">x-intercept</span>, the midpoint between the two vertical asymptotes.  <span style="color: red; font-weight: bold; margin-left: 20px;">HORIZONTAL AXIS INTERCEPT</span></li> <li>3. Find the midpoints between the x-intercept and the two vertical asymptotes. These midpoints will have a values of <math>-A</math> and <math>+A</math> respectively.</li> <li>4. Use steps 1 – 3 to graph one full period of the function. Add additional cycles to the left or right as needed.</li> </ol> <p><b>Example 1:</b> Graph <math>f(x) = \tan(x)</math> <span style="color: red; margin-left: 20px;"><math>a = 1 \quad b = 1 \quad c = 0 \quad d = 0</math></span></p> <p>Step 1:  <span style="color: red; font-size: 1.2em; margin-left: 20px;"><u><math>b x - c = \pm \frac{\pi}{2}</math></u></span>     <math>x = -\frac{\pi}{2}</math>     <math>x = \frac{\pi}{2}</math></p> <p>Step 2:</p> <p>Step 3:</p> <p>Step 4:</p> <div style="text-align: center;"> </div>

<p><b>Section 4.6 Graphs The Tangent Function</b></p> <p>Students will be able to find all the key points of the graphs of specific tangent functions and graph the functions.</p>	<p>Honors Precalculus</p>
<p style="color: green;"><math>\frac{x}{2} = \frac{1}{2}x</math></p> <p style="color: red; font-size: 1.2em;">PERIOD: <math>\frac{\pi}{\frac{1}{2}} = 2\pi</math></p>	<p><b>Example 2:</b> Graph <math>f(x) = 3\tan\left(\frac{x}{2}\right) - 1</math></p> <p style="color: green; font-size: 1.2em;"> <math>a = 3</math>    <math>b = \frac{1}{2}</math>  <math>c = 0</math>    <math>d = -1</math> </p> <p>Step 1: <span style="color: green;">(circled)</span> <math>bx - c = \frac{x}{2}</math></p> <p>Step 2: <math>\frac{x}{2} = \left(-\frac{\pi}{2}\right) + 2\pi</math>    <math>\frac{x}{2} = \frac{\pi}{2}</math></p> <p>Step 3: <math>x = -\pi</math>    <math>x = \pi</math></p> <p>Step 4:</p> <div style="text-align: center;"> </div>

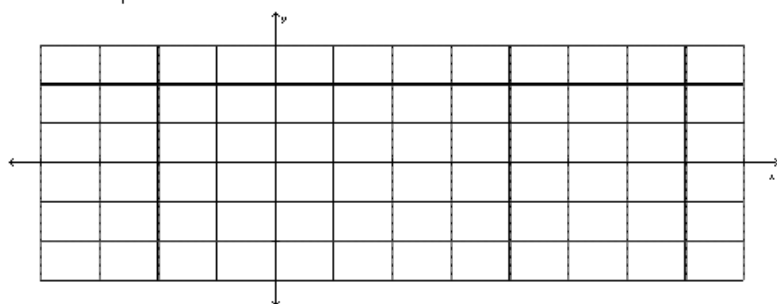
Graph the following problems

1.  $f(x) = 3 \tan x$



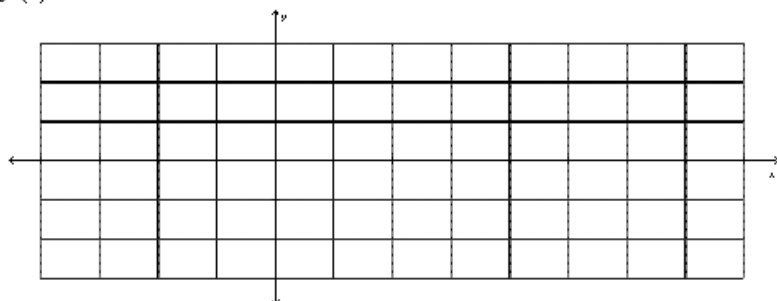
$|a| =$   
 Period=  
 Frequency =  
 Vertical Shift:  
 Asymptotes:

2.  $f(x) = \tan \frac{1}{4} x$



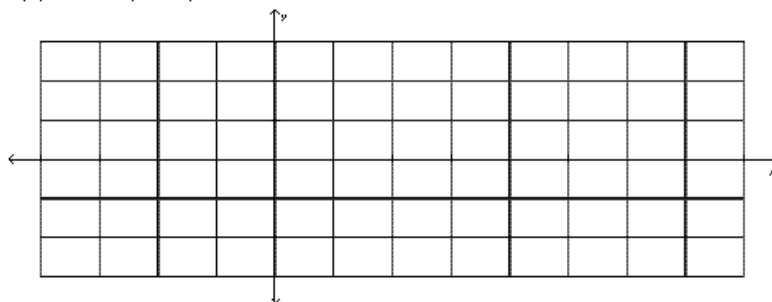
$|a| =$   
 Period=  
 Frequency =  
 Vertical Shift:  
 Asymptotes:

3.  $f(x) = 0.5 \tan \pi x + 1$



$|a| =$   
 Period=  
 Frequency =  
 Vertical Shift:  
 Asymptotes:

4.  $f(x) = 2 \tan(x + \pi) - 2$



$|a| =$

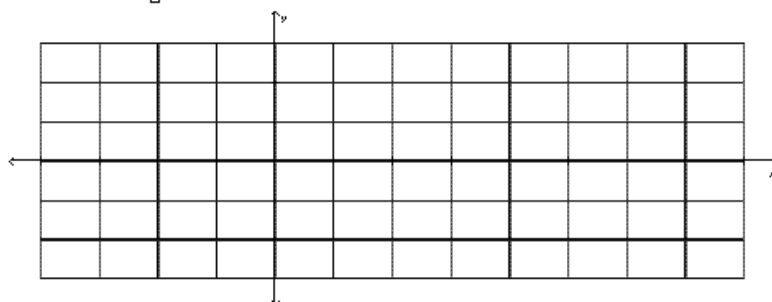
Period =

Frequency =

Vertical Shift:

Asymptotes:

5.  $f(x) = -\tan \frac{\pi x}{2}$



$|a| =$

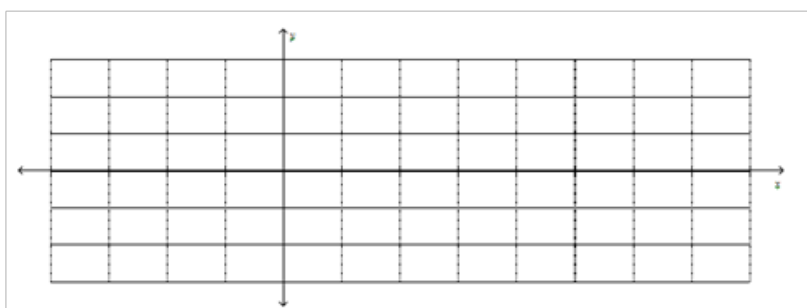
Period =

Frequency =

Vertical Shift:

Asymptotes:

6.  $f(x) = 1.5 \tan x + 2$



$|a| =$

Period =

Frequency =

Vertical Shift:

Asymptotes: