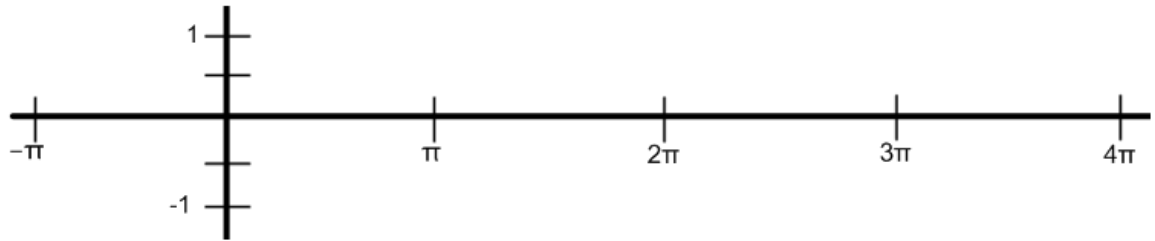


I.  $f(x) = \tan x$  (parent graph)

$x$	$f(x)$
0	
$\frac{\pi}{4}$	
$\frac{\pi}{2}$	
$\frac{3\pi}{4}$	
$\pi$	
$\frac{5\pi}{4}$	
$\frac{3\pi}{2}$	
$\frac{7\pi}{4}$	
$2\pi$	



A. Characteristics  $\implies y = A \tan[B(x - C)] + D$

- Domain: \_\_\_\_\_ Range: \_\_\_\_\_
- Odd function, therefore it has \_\_\_\_\_ symmetry.
- **Fundamental Period** (how long to repeat the pattern).

$FP = \frac{\pi}{B}$  The parent,  $y = \tan x$ , has a FP = \_\_\_\_\_.

- **A = Vertical Stretch/Compression**  
When  $A > 0$ ,  $y = \tan x$  is **Right-Handed** (Graph \_\_\_\_\_)  
When  $A < 0$ ,  $y = \tan x$  is **Left-Handed** (Graph \_\_\_\_\_)

Note:  $y = \tan x$  has **NO Amplitude**. There is no Max or min on tangent graphs.

- **Vertical Shift = D**
- **Horizontal Shift = C**  
The horizontal shift of a trig function (graph) is called the \_\_\_\_\_ shift.

**5 CRITICAL POINTS** (These are your popping points.)

1. START on \_\_\_\_\_.
2. END on \_\_\_\_\_.
3. \_\_\_\_\_ at middle of the period.

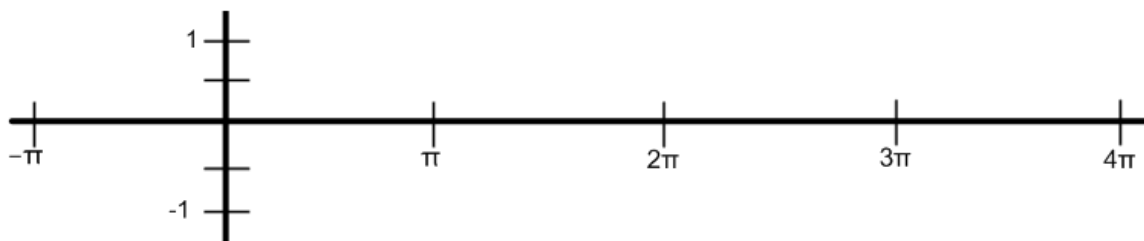
**If A > 0**

**If A < 0**

4. At \_\_\_\_\_ of period,  $\tan x =$  \_\_\_\_\_.
4. At \_\_\_\_\_ of period,  $\tan x =$  \_\_\_\_\_.
5. At \_\_\_\_\_ of period,  $\tan x =$  \_\_\_\_\_.
5. At \_\_\_\_\_ of period,  $\tan x =$  \_\_\_\_\_.

II.  $f(x) = \cot x$  (parent graph)

$x$	$f(x)$
0	
$\frac{\pi}{4}$	
$\frac{\pi}{2}$	
$\frac{3\pi}{4}$	
$\pi$	
$\frac{5\pi}{4}$	
$\frac{3\pi}{2}$	
$\frac{7\pi}{4}$	
$2\pi$	



A. Characteristics  $\implies y = A \cot[B(x - C)] + D$

- Domain: \_\_\_\_\_ Range: \_\_\_\_\_
- Odd function, therefore it has \_\_\_\_\_ symmetry.
- **Fundamental Period** (how long to repeat the pattern).

$FP = \frac{\pi}{B}$       The parent,  $y = \cot x$ , has a FP = \_\_\_\_\_.

- **A = Vertical Stretch/Compression**

When  $A > 0$ ,  $y = \cot x$  is **Left-Handed** (Graph \_\_\_\_\_)

When  $A < 0$ ,  $y = \cot x$  is **Right-Handed** (Graph \_\_\_\_\_)

Note:  $y = \tan x$  has **NO Amplitude**. There is no Max or min on tangent graphs.

- **Vertical Shift = D**
- **Horizontal Shift = C**  
The horizontal shift of a trig function (graph) is called the \_\_\_\_\_ shift.

**5 CRITICAL POINTS** (These are your popping points.)

1. START on \_\_\_\_\_.
2. END on \_\_\_\_\_.
3. \_\_\_\_\_ at middle of the period.

**If  $A > 0$**

**If  $A < 0$**

4. At \_\_\_\_\_ of period,  $\tan x =$  \_\_\_\_\_.
4. At \_\_\_\_\_ of period,  $\tan x =$  \_\_\_\_\_.
5. At \_\_\_\_\_ of period,  $\tan x =$  \_\_\_\_\_.
5. At \_\_\_\_\_ of period,  $\tan x =$  \_\_\_\_\_.