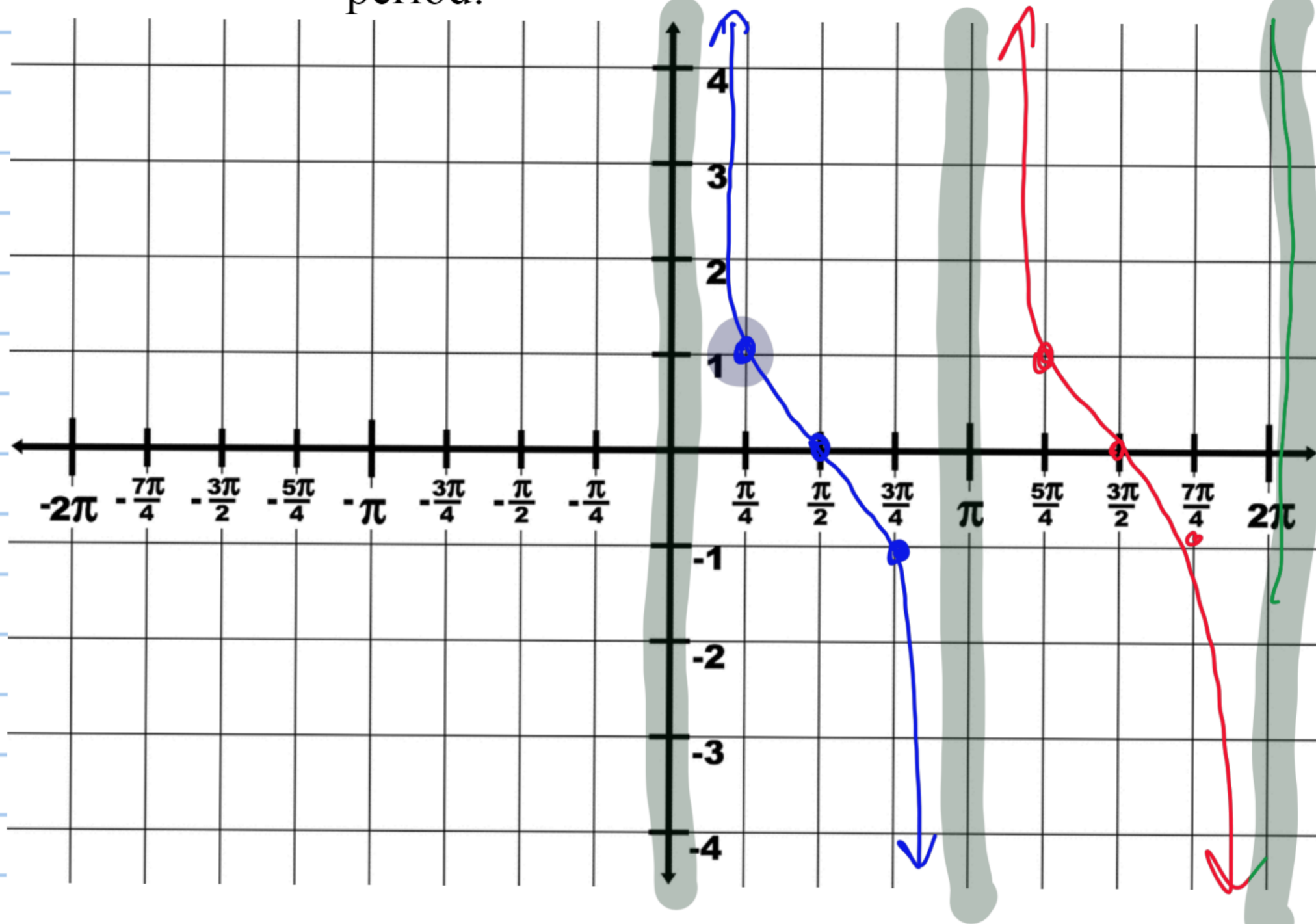


# Graph $y = \cot x$

vertical shift: none  
 amplitude: 4  
 phase shift: none  
 period:  $\pi$

$$T_{inc} = \frac{\pi}{4}$$

$x$	
$0$	undef
$\frac{\pi}{4}$	1
$\frac{\pi}{2}$	$\infty$
$\frac{3\pi}{4}$	-1
$\pi$	undef

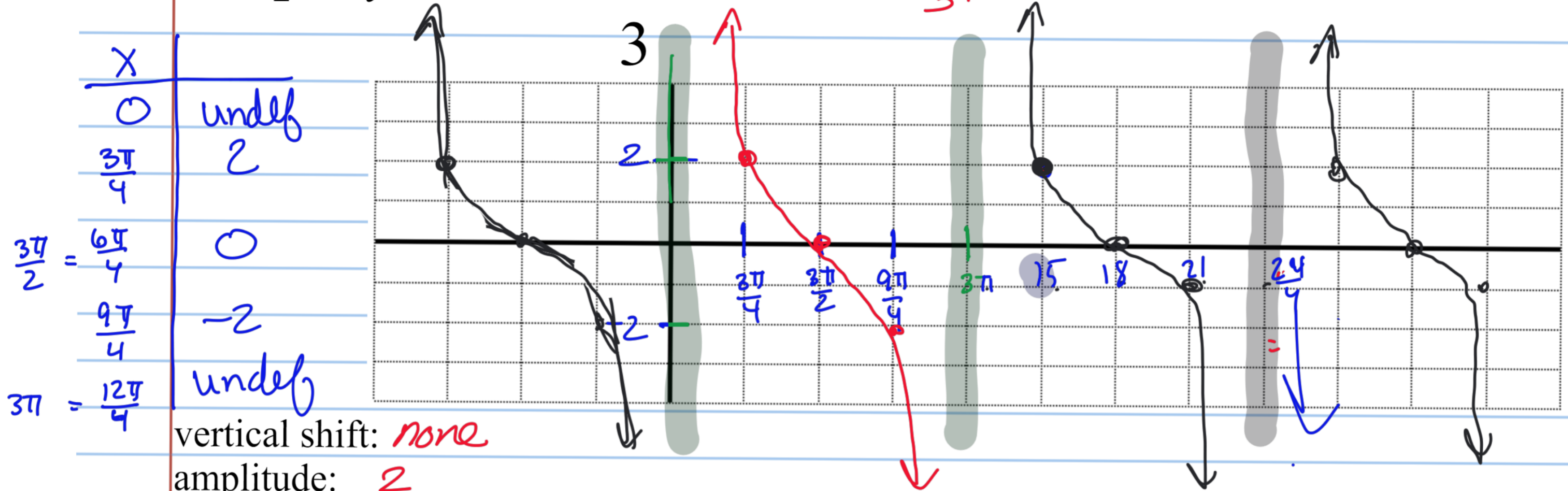


$D: \{x \in \mathbb{R} \mid x \neq k\pi \text{ where } k \in \mathbb{Z}\}$   
 $k$  is an integer

# Example

Graph  $y = 2 \cot \frac{x}{3} = 2 \cot \frac{1}{3} x$

$\xrightarrow{202}$  AHMLA



vertical shift: *none*

amplitude: *2*

phase shift: *none*

period:  $\frac{\pi}{\frac{1}{3}}$   
 $= 3\pi$

Inc =  $\frac{3\pi}{4}$

D:  $\{ x \in \mathbb{R} \mid x \neq 3k\pi \text{ is an integer } k \}$

R:  $\{ y \in \mathbb{R} \}$

Example

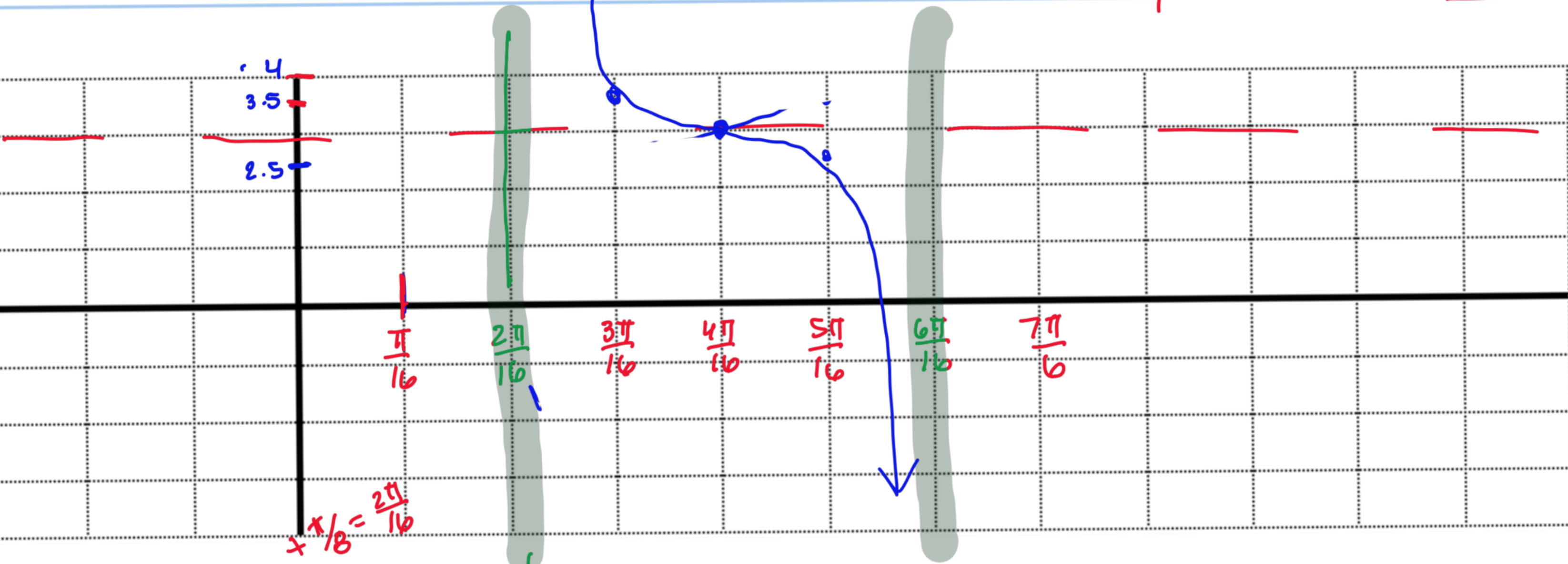
$$y = 3 + \frac{1}{2} \cot\left(4\left(x - \frac{\pi}{8}\right)\right)$$

$$\frac{1}{2} \cdot \frac{1}{4} = \frac{1}{8}$$

Graph  $y = 3 + \frac{1}{2} \cot\left(4x - \frac{\pi}{2}\right)$

vertical shift: 3  
 amplitude: 1  
 phase shift:  $\frac{\pi}{8}$   
 period:  $\frac{\pi}{4}$

$$\text{Incr} = \frac{\pi}{4} \cdot \frac{1}{4} = \frac{\pi}{16}$$



x	New	
0	$\frac{2\pi}{16} = \frac{\pi}{8}$	undef
$\frac{\pi}{16}$	$\frac{3\pi}{16}$	3.5
$\frac{2\pi}{16} = \frac{\pi}{8}$	$\frac{4\pi}{16} = \frac{\pi}{4}$	3
$\frac{3\pi}{16}$	$\frac{5\pi}{16}$	2.5
$\frac{4\pi}{16} = \frac{\pi}{4}$	$\frac{6\pi}{16} = \frac{3\pi}{8}$	undef

3.5 3 2.5  
 A H M L A