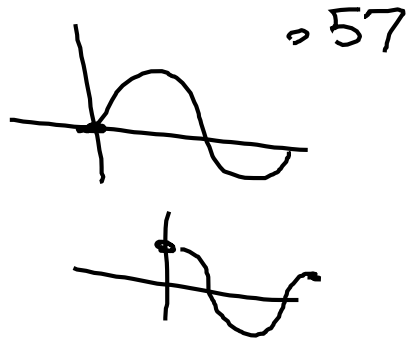


Graphs of Other Trigonometric Functions

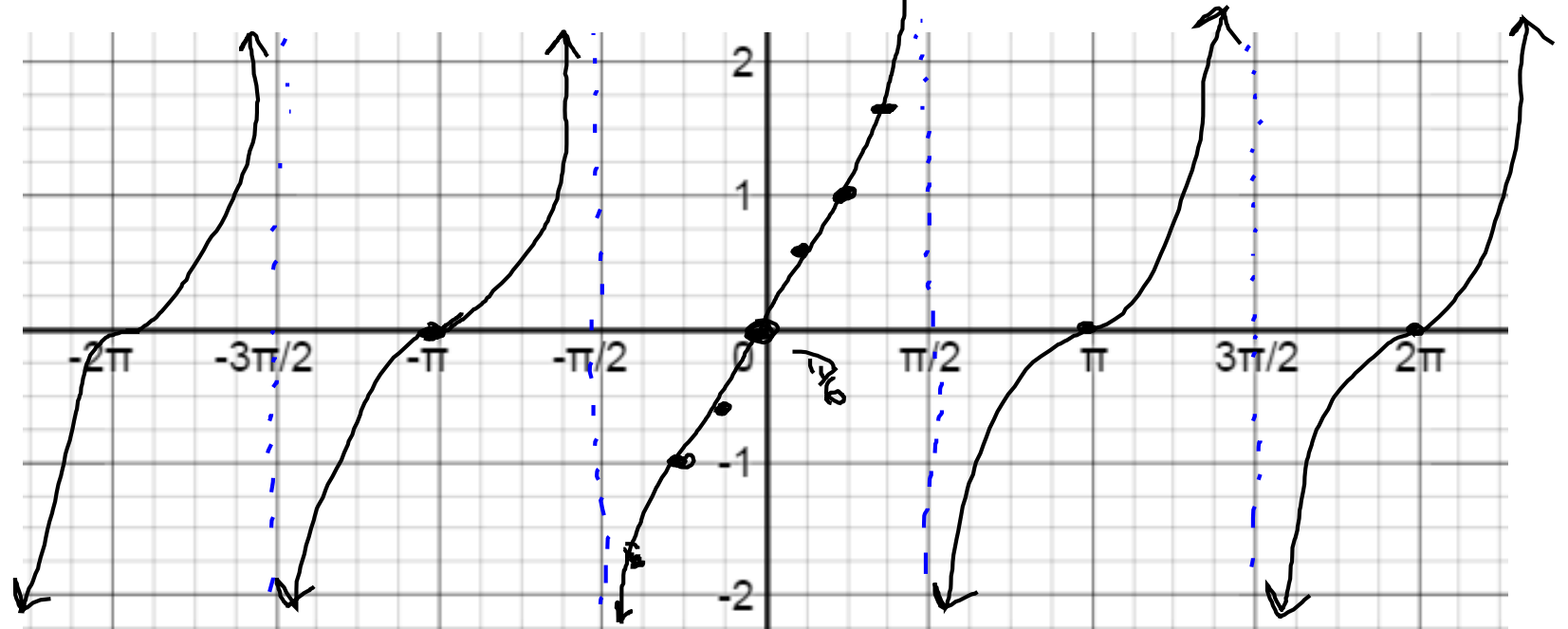
Section 4.6

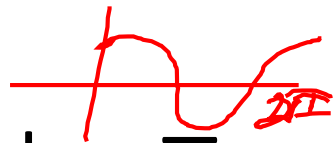
Using Reference Angles

	0	30	45	60	90	120	135	150	180	210	225	240	270	300	315	330
sin	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0	$-\frac{1}{2}$	$-\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{3}}{2}$	-1	$-\frac{\sqrt{3}}{2}$	$-\frac{\sqrt{2}}{2}$	$-\frac{1}{2}$
cos	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0	$-\frac{1}{2}$	$-\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{3}}{2}$	-1	$-\frac{\sqrt{3}}{2}$	$-\frac{\sqrt{2}}{2}$	$-\frac{1}{2}$	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$
tan	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	und	$-\sqrt{3}$	-1	$-\frac{\sqrt{3}}{3}$	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	und	$-\sqrt{3}$	-1	$-\frac{\sqrt{3}}{3}$

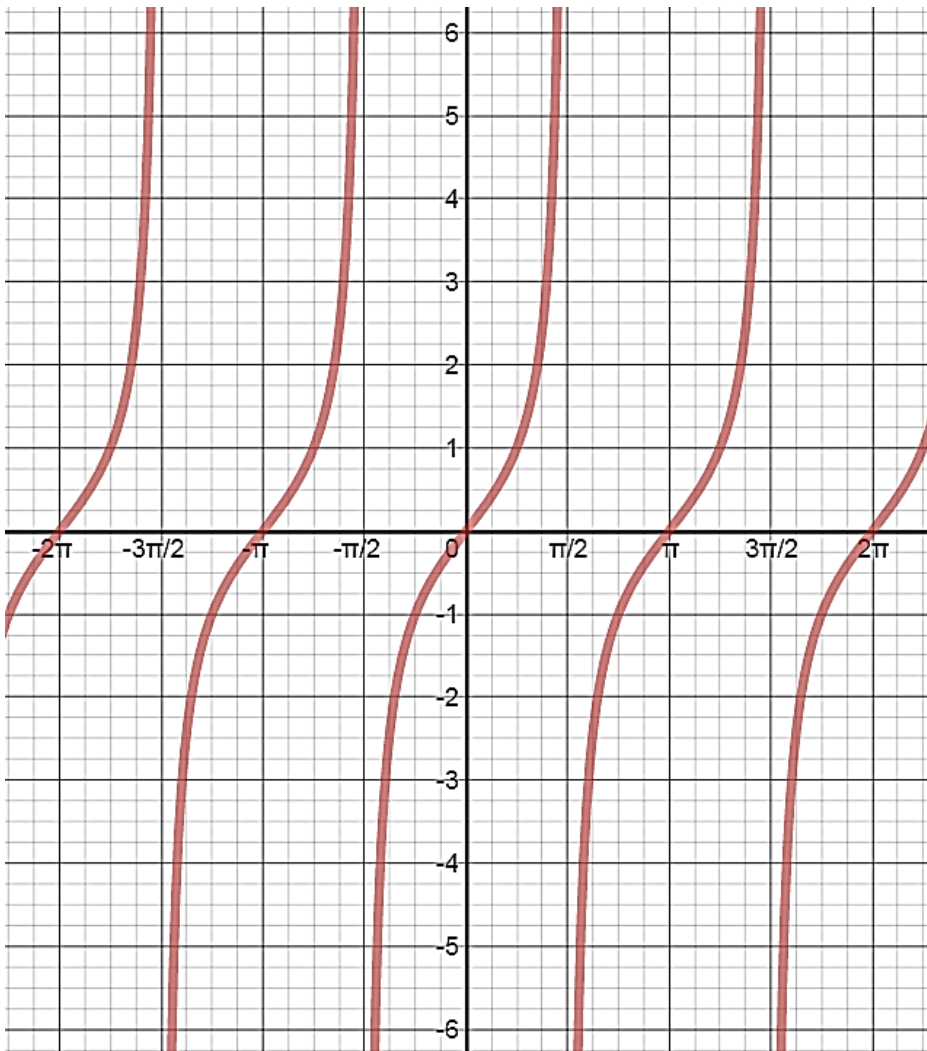


0.57 1.7





Graph of the Tangent Function



Period: π

Domain: all $x \neq \frac{\pi}{2} + n\pi$

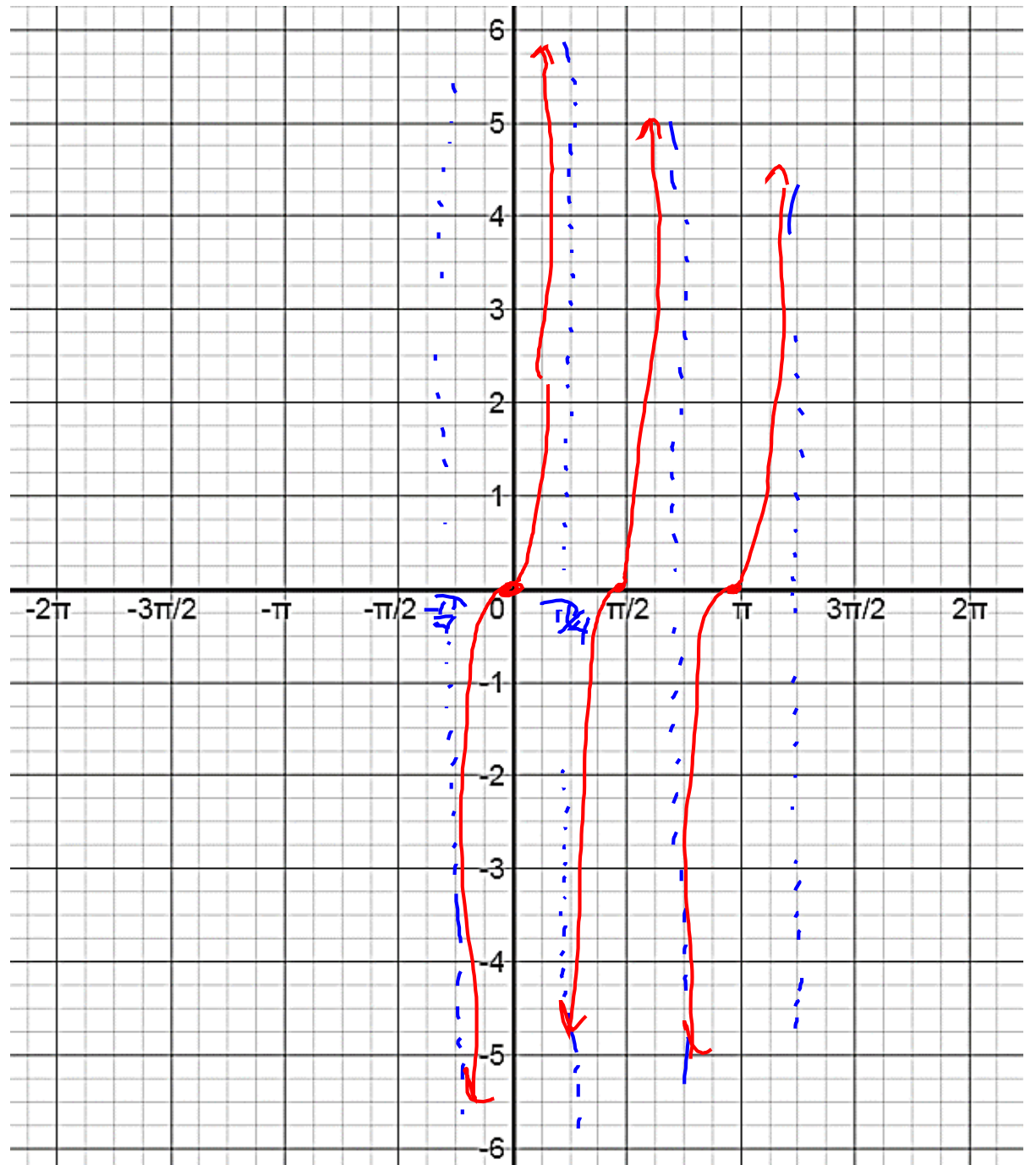
Range: \mathbb{R}

Vertical asymptotes: $\frac{\pi}{2} + n\pi$

Symmetry: origin

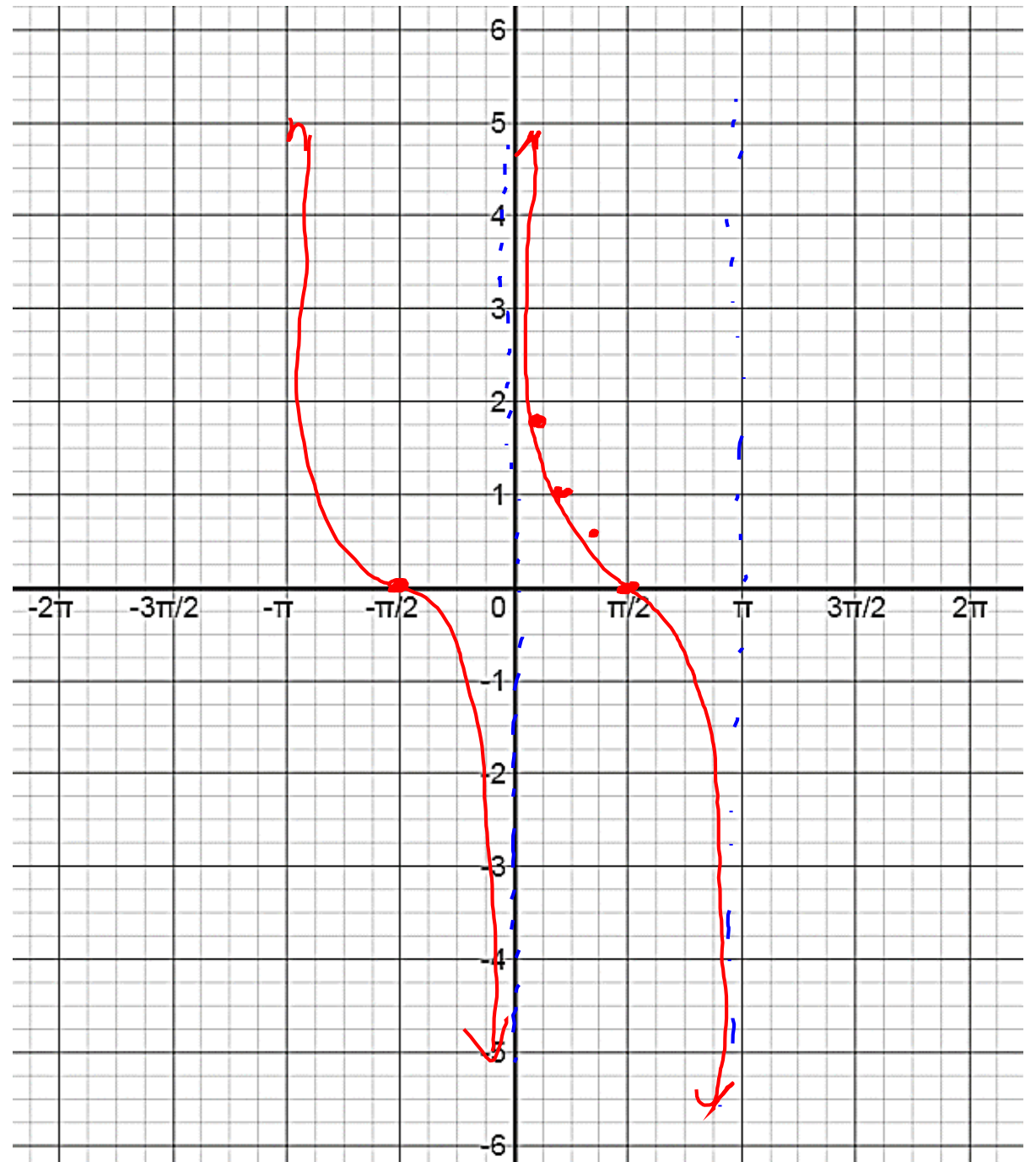
Graph $y = 2 \tan 2x$

vertical stretch



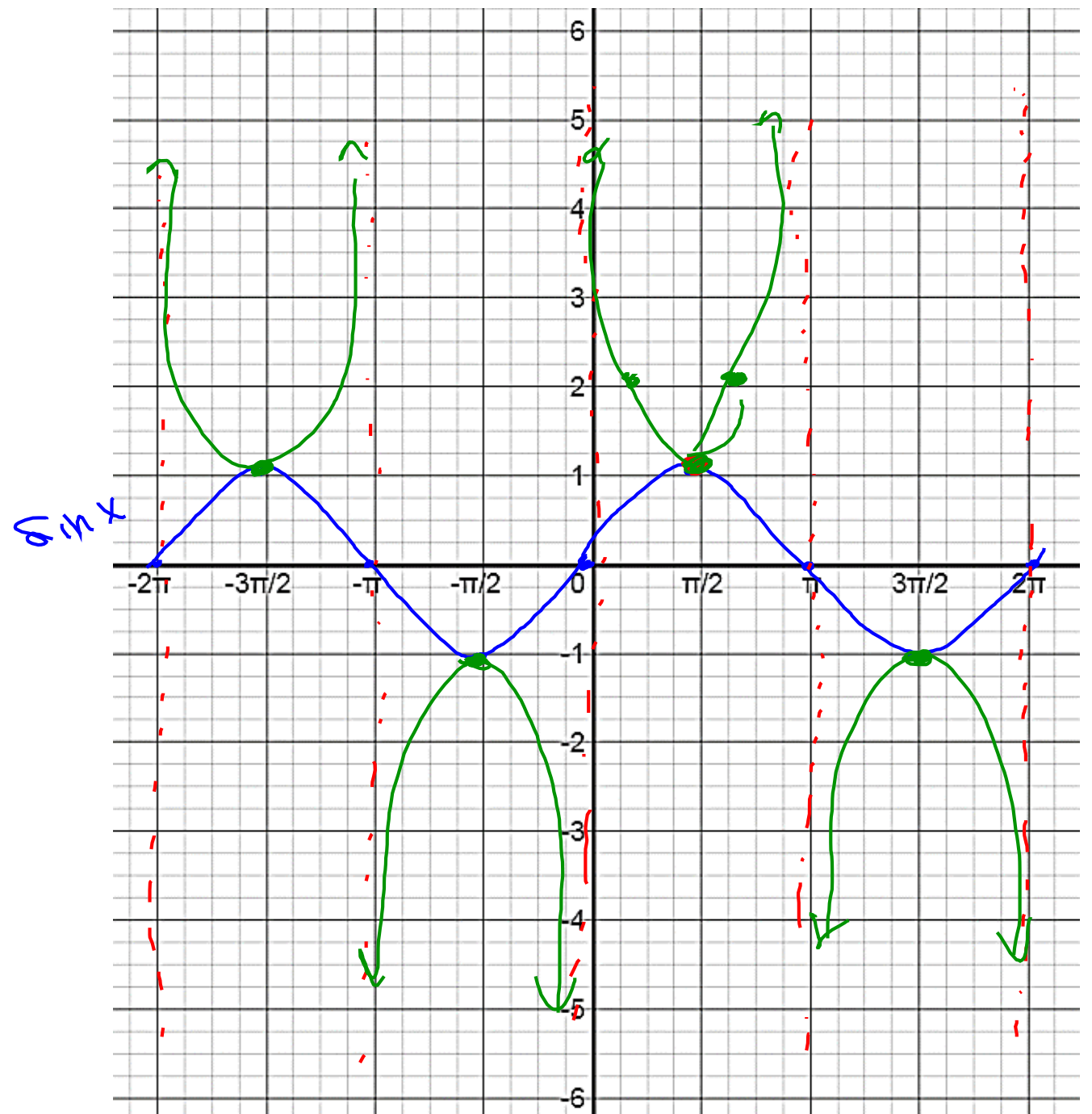
Graph $y = \cot x$

	0			90
	30			und
\sin	$\frac{\sqrt{3}}{2}$	1	$\frac{\sqrt{3}}{2}$	
\cot	$\sqrt{3}$	1	$\frac{1}{\sqrt{3}}$	0
	und			



Graph $y = \csc x$

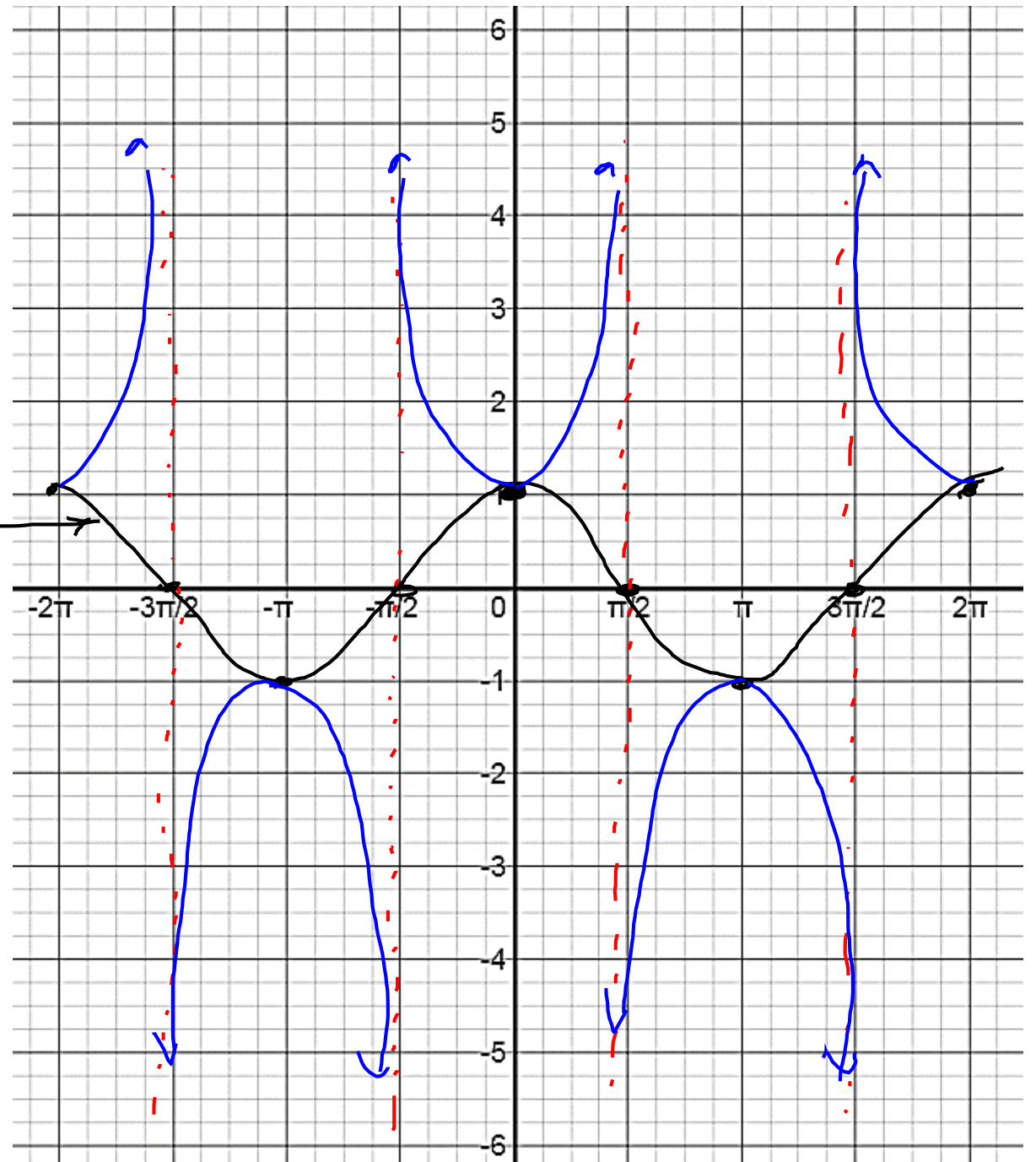
$$\frac{1}{\sin x}$$



Graph $y = \sec x$

$$y = \frac{1}{\cos x}$$

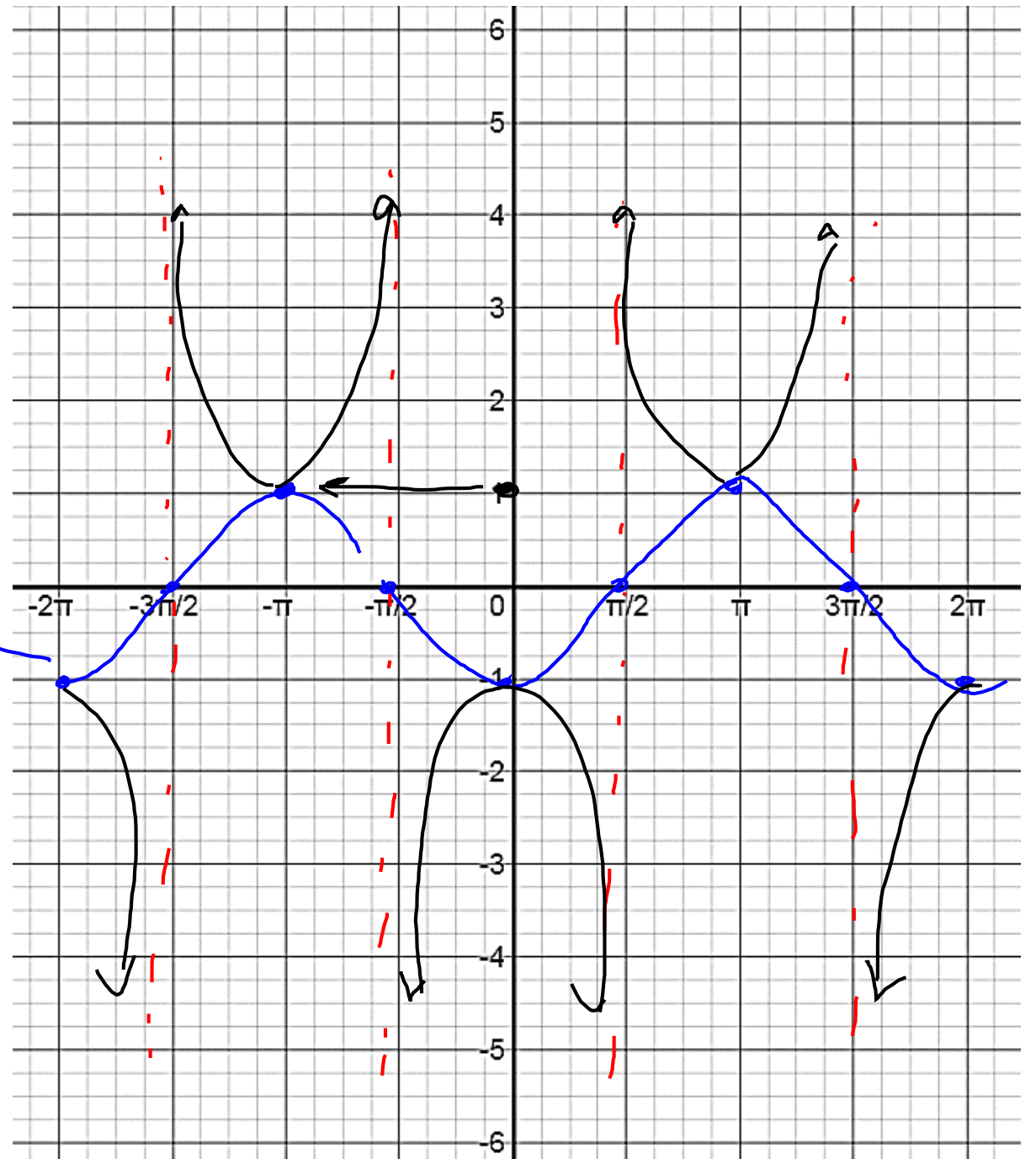
$y = \cos x$



Graph $y = \sec(x + \pi)$

$$\frac{1}{\cos(x + \pi)} \leftarrow \text{left} + \pi$$

$$\cos(x + \pi)$$

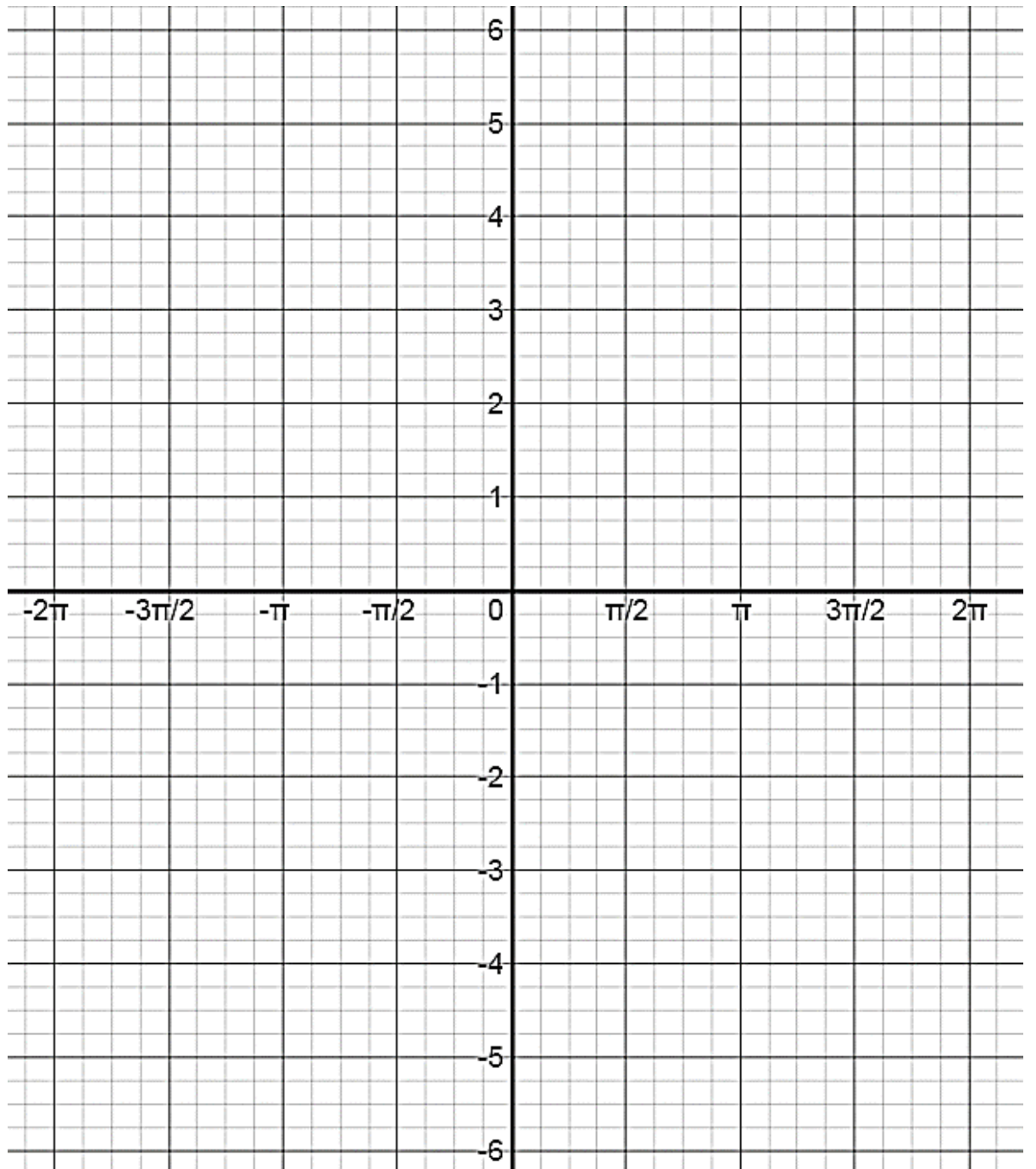
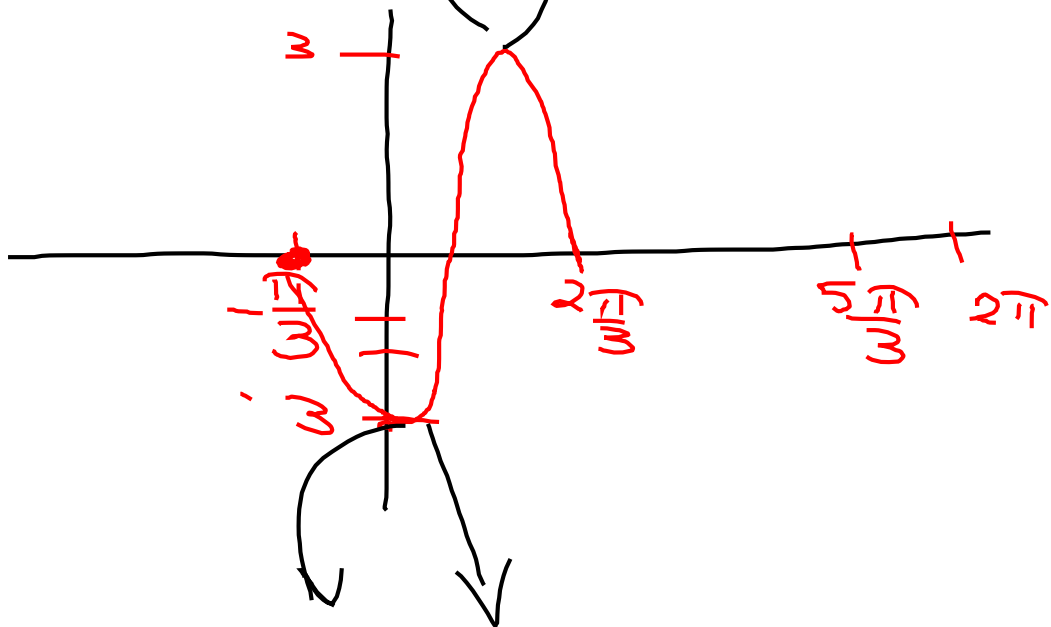


Graph $y = -3\csc\left(x + \frac{\pi}{3}\right)$

reflect
&
stretch

by factor
of 3

left
 60°



Section 4.6 p317; 15, 16, 22, 24, 25, 32, 35