Questions from Homework

⑧ d) $1-\sin\theta = 2\sin^2\theta$ $\quad 2\times -1 = -2$, $2+-1=1$

$0 = 2\sin^2\theta + \sin\theta - 1$

$0 = (2\sin^2\theta + 2\sin\theta)(-\sin\theta - 1)$

$0 = 2\sin\theta(\sin\theta+1) - 1(\sin\theta+1)$

$0 = (2\sin\theta - 1)(\sin\theta+1)$

$2\sin\theta - 1 = 0$

$2\sin\theta = 1$

$\sin\theta = \frac{1}{2}$ ref $= 30°$

Quad 1	Quad 2
$\theta = 30°$	$\theta = 150°$
$\theta = -330°$	$\theta = -210°$

$\sin\theta + 1 = 0$

$\sin\theta = -1$

$\theta = 270°$

$\theta = -90°$

⑧ e) $2\sin^2\theta + 5\sin\theta - 3 = 0$ $\quad -1\times 6 = -6$, $-1+6=5$

$(2\sin^2\theta - \sin\theta)(+6\sin\theta - 3) = 0$

$\sin\theta(2\sin\theta - 1) + 3(2\sin\theta - 1) = 0$

$(2\sin\theta - 1)(\sin\theta + 3) = 0$

$2\sin\theta - 1 = 0$

$2\sin\theta = 1$

$\sin\theta = \frac{1}{2}$ ref $= 30°$

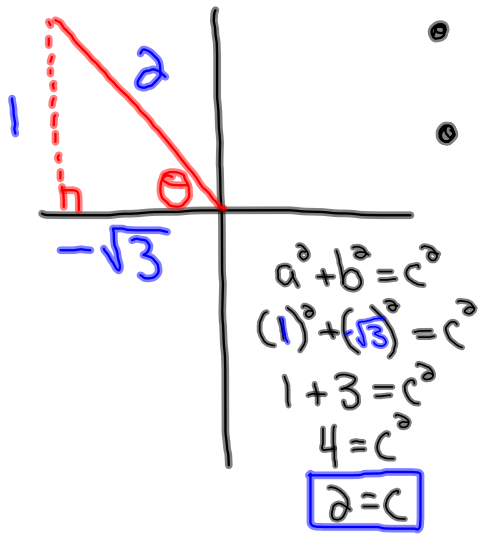
Quad 1	Quad 2
$\theta = 30°$	$\theta = 150°$
$\theta = -330°$	$\theta = -210°$

$\sin\theta + 3 = 0$

$\sin\theta = -3$

Not Possible

③



$a^2+b^2=c^2$

$(1)^2+(\sqrt{3})^2=c^2$

$1+3=c^2$

$4=c^2$

$\boxed{2=c}$

- θ is in 2nd Quad
- $\tan\theta = -\frac{1}{\sqrt{3}}$ $\frac{\text{opp}}{\text{adj}}$

$\sin\theta = \frac{1}{2}$ $\quad \csc\theta = 2$

$\cos\theta = -\frac{\sqrt{3}}{2}$ $\quad \sec\theta = -\frac{2}{\sqrt{3}} = -\frac{2\sqrt{3}}{3}$

$\tan\theta = -\frac{1}{\sqrt{3}} = -\frac{\sqrt{3}}{3}$ $\quad \cot\theta = -\sqrt{3}$

Questions from Homework

⑥ d) $2\cos^2\theta + 7\cos\theta = -3 \qquad -360 \le \theta \le 360$

$6 \times 1 = 6$

$6 + 1 = 7$

$2\cos^2\theta + 7\cos\theta + 3 = 0$

$(2\cos^2\theta + \cos\theta) + (6\cos\theta + 3) = 0$

$\cos\theta(2\cos\theta + 1) + 3(2\cos\theta + 1) = 0$

$(\cos\theta + 3)(2\cos\theta + 1) = 0$

$\cos\theta + 3 = 0$

$\cos\theta = -3$

Not Possible

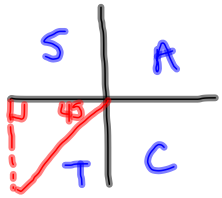
$2\cos\theta + 1 = 0$

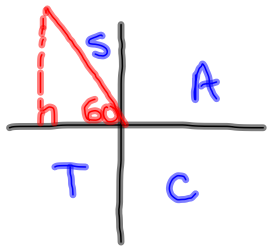
$2\cos\theta = -1$

$\cos\theta = -\frac{1}{2}$ ref = 60°

Quad 2	Quad 3
$\theta = 120°$	$\theta = 240°$
$\theta = -240°$	$\theta = -120°$

⑥ c) $\dfrac{\sin^2 225^\circ}{4\cos 120^\circ + \sqrt{5}}$





$$\frac{\left(\frac{-1}{\sqrt{2}}\right)^2}{4\left(\frac{-1}{2}\right)+\sqrt{5}}$$

$$\frac{\frac{1}{2}}{-2+\sqrt{5}}$$

$$\frac{1}{2} \times \frac{1}{-2+\sqrt{5}}$$

$$\frac{1}{-4+2\sqrt{5}}$$

$$\frac{1}{(2\sqrt{5}-4)} \cdot \frac{(2\sqrt{5}+4)}{(2\sqrt{5}+4)}$$

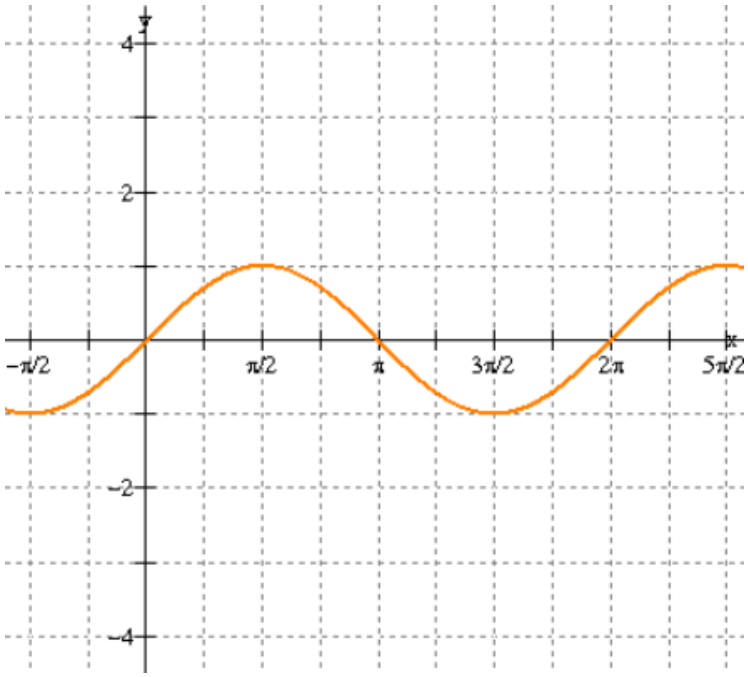
$$\frac{2\sqrt{5}+4}{20-16}$$

$$\frac{2\sqrt{5}+4}{4}$$

$$\boxed{\frac{\sqrt{5}+2}{2}}$$

Graphs of Other Trig Functions

y = sin θ



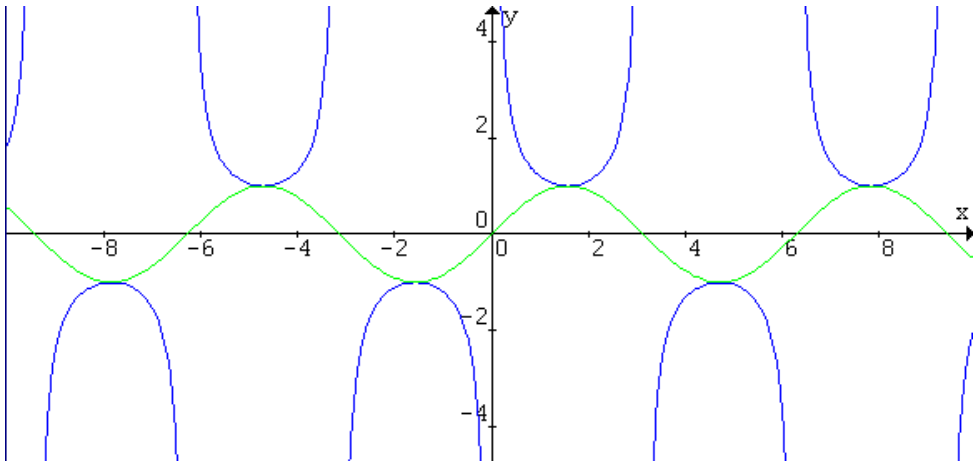
What would the graph of **csc θ** look like?

REMEMBER:

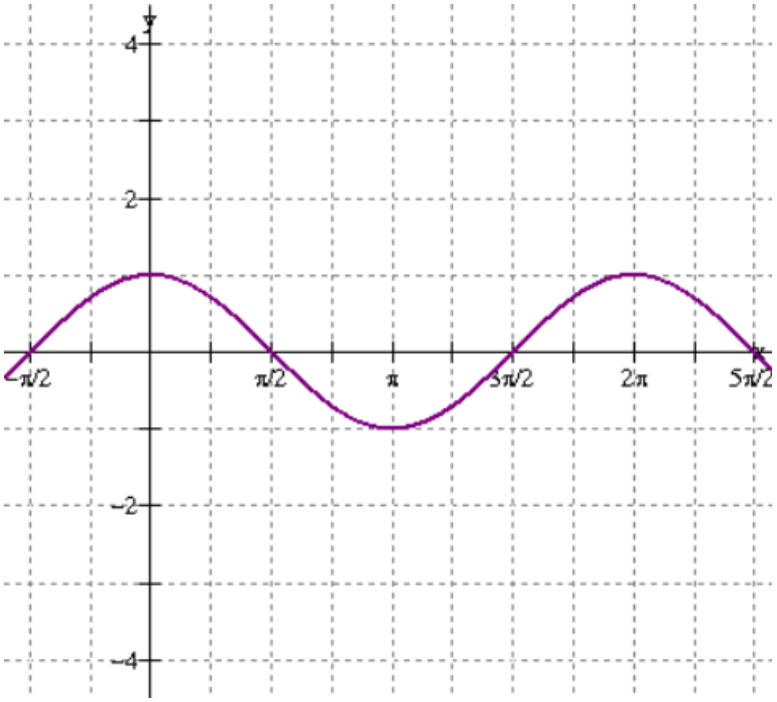
$$\csc\theta = \frac{1}{\sin\theta}$$

where sin x = 0,
csc x is undefined

y = sin x y = csc x



y = cos θ



What would the graph of **sec θ** look like?

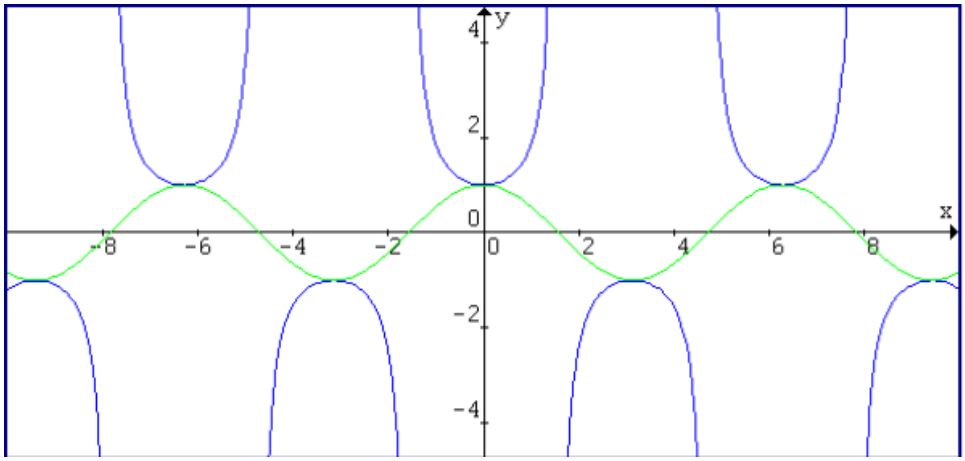
REMEMBER:

$$\sec\theta = \frac{1}{\cos\theta}$$

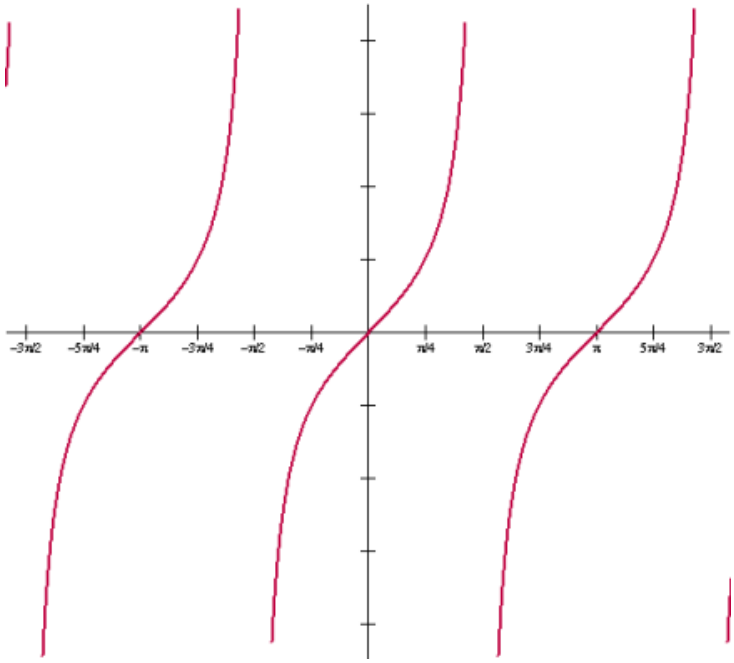
where cos x = 0,
sec x is undefined

y = cos x

y = sec x



y = tan θ



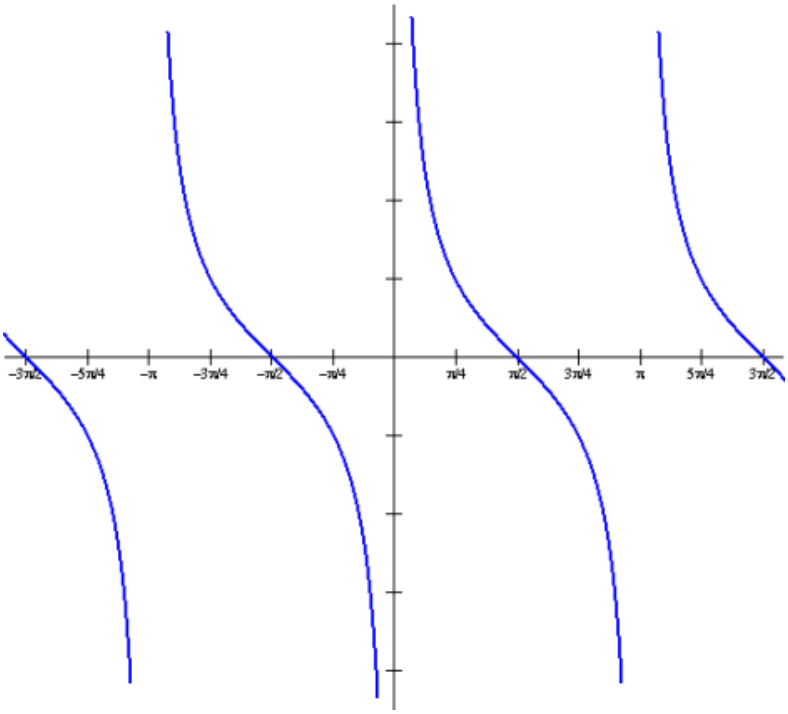
What would the graph of **cot θ** look like?

REMEMBER:

$$\tan x = \frac{1}{\cot x}$$

where tan x = 0,
cot x is undefined

y = cot θ



Homework