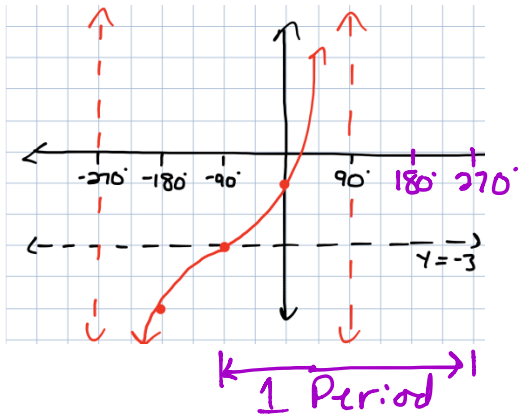
Graphs & Inverses of Trig Functions
4B – Graphing Tangent & Cotangent

Write an equation of the ***tangent*** function with the given information

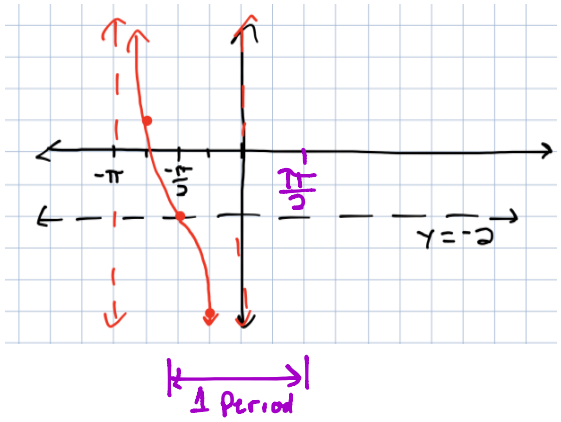
#1)



$360°k = 180°$
$k = \frac{1}{2}$

Equation $y = 2\tan\left(\frac{1}{2}(\theta + 90°)\right) - 3$

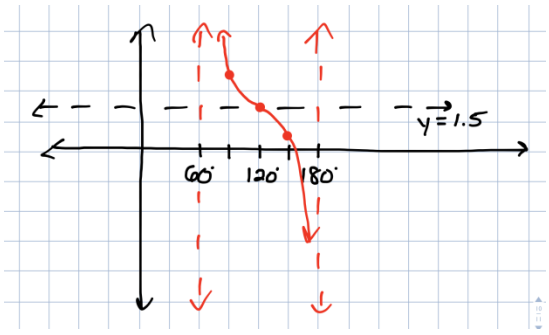
#2)



Equation $y = -3\tan\left(\theta + \frac{\pi}{3}\right) - 2$

Write an equation of the ***cotangent*** function with the given information

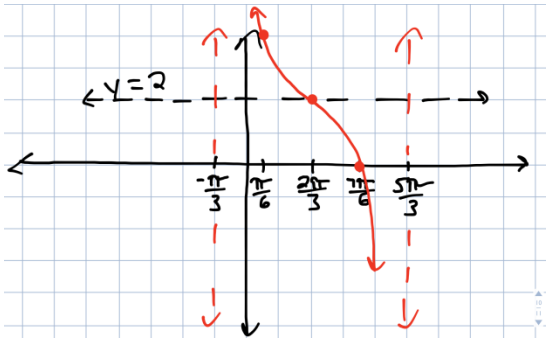
#3)



$120k = 180$
$k = \frac{18}{12}$
$k = \frac{3}{2}$

Equation $y = \cot\left[\frac{3}{2}(\theta - 60°)\right] + 1.5$

#4)



$2\pi k = \pi$
$k = \frac{1}{2}$

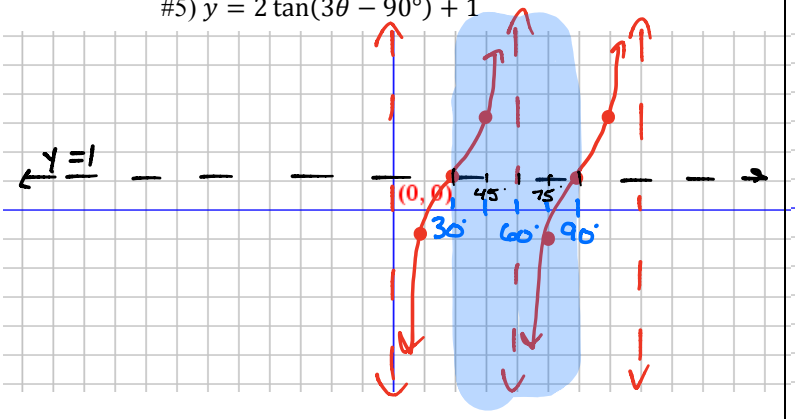
Equation $y = 2\cot\left[\frac{1}{2}\left(\theta + \frac{\pi}{3}\right)\right] + 2$

Graphs & Inverses of Trig Functions
4B – Graphing Tangent & Cotangent

Graph each function for at least 2 periods.

$y = 2\tan(3\theta - 90°) + 1$

$y = 2\tan[3(\theta - 30°)] + 1$



translate up 1, right 30°

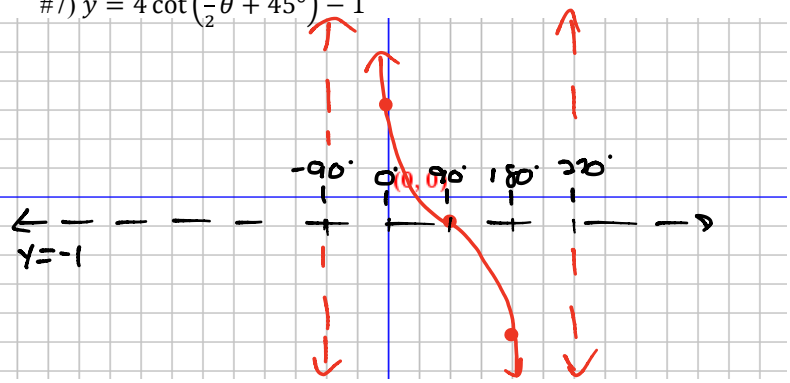
Shrink horizontally by 3

Stretch vertically by 2

Graph each function for at least 1 period.

$y = 4\cot\left(\frac{1}{2}\theta + 45°\right) - 1$

$y = 4\cot\left[\frac{1}{2}(\theta + 90°)\right] - 1$



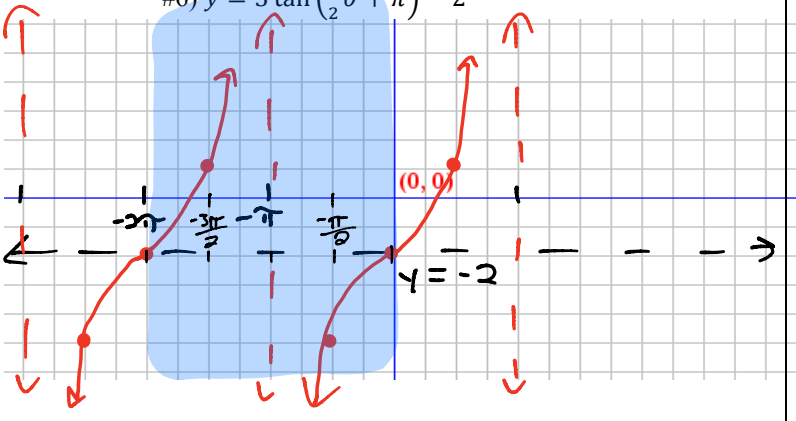
translate down 1, left 90°

Stretch horizontally by 2

Stretch vertically by 4

$y = 3\tan\left(\frac{1}{2}\theta + \pi\right) - 2$

$y = 3\tan\left[\frac{1}{2}(\theta + 2\pi)\right] - 2$



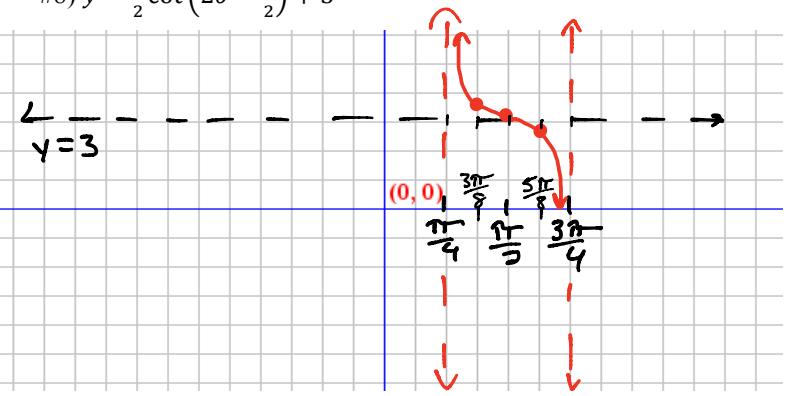
translate down 2, left 2π

Stretch horizontally by 2

Stretch vertically by 3

$y = \frac{1}{2}\cot(2\theta - \frac{\pi}{2}) + 3$

$y = \frac{1}{2}\cot\left[2(\theta - \frac{\pi}{4})\right] + 3$



translate up 3, right $\frac{\pi}{4}$

Shrink horizontally by $\frac{1}{2}$

Shrink vertically by $\frac{1}{2}$