

Trig Graphing WS
Tangent and Cotangent

Name Key

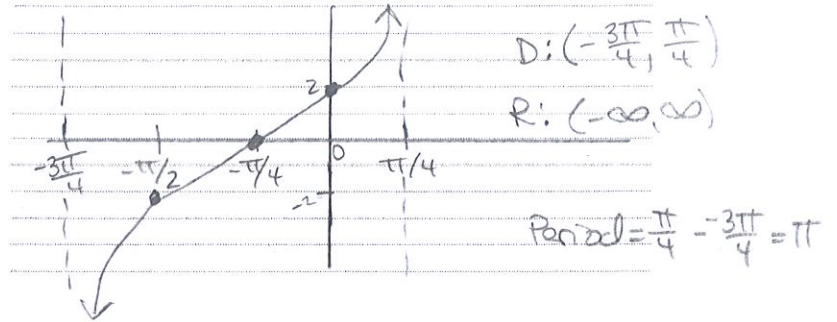
Graph one complete period for each function and give the period, and the domain and range of that period.

1. $y = 2 \tan\left(x + \frac{\pi}{4}\right)$

$x + \frac{\pi}{4} = -\frac{\pi}{2}$ $x + \frac{\pi}{4} = \frac{\pi}{2}$

$x = -\frac{2\pi}{4} - \frac{\pi}{4}$ $x = \frac{2\pi}{4} - \frac{\pi}{4}$

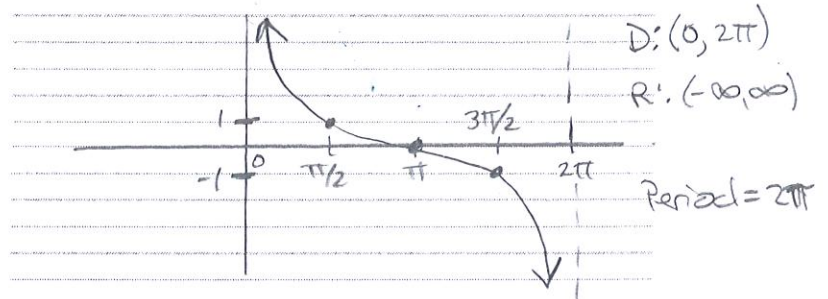
$x = -\frac{3\pi}{4}$ $x = \frac{\pi}{4}$



2. $y = \cot\left(\frac{1}{2}x\right)$

$\frac{1}{2}x = 0$ $\frac{1}{2}x = \pi$

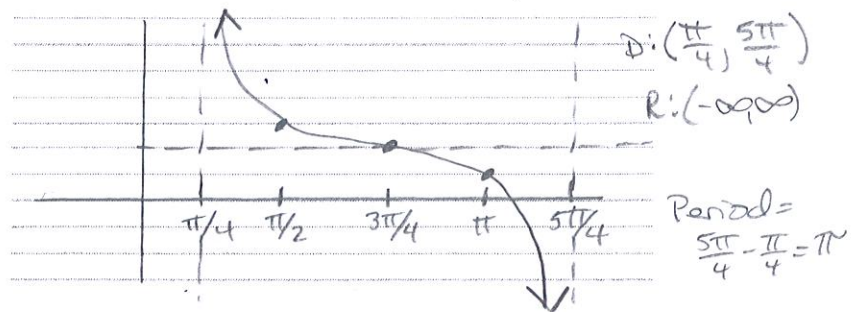
$x = 0$ $x = 2\pi$



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

$x - \frac{\pi}{4} = 0$ $x - \frac{\pi}{4} = \pi$

$x = \frac{\pi}{4}$ $x = \frac{4\pi}{4} + \frac{\pi}{4}$
 $x = \frac{5\pi}{4}$



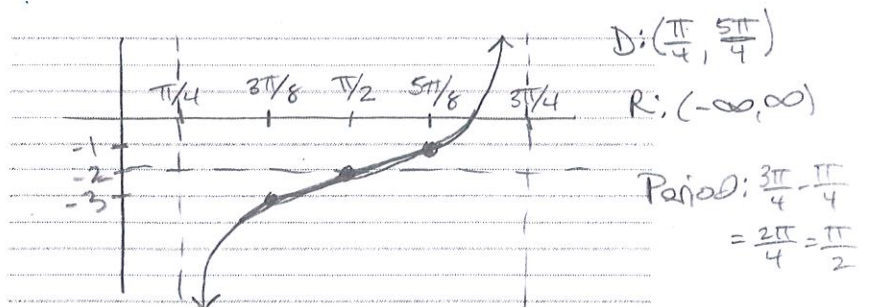
4. $y = \tan(2x - \pi) - 2$

$2x - \pi = -\frac{\pi}{2}$ $2x - \pi = \frac{\pi}{2}$

$2x = -\frac{\pi}{2} + \frac{2\pi}{2}$ $2x = \frac{\pi}{2} + \frac{2\pi}{2}$

$(\frac{1}{2})2x = \frac{\pi}{2}(\frac{1}{2})$ $(\frac{1}{2})2x = \frac{3\pi}{2}(\frac{1}{2})$

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



5. $y = \cot\left(x - \frac{\pi}{2}\right)$

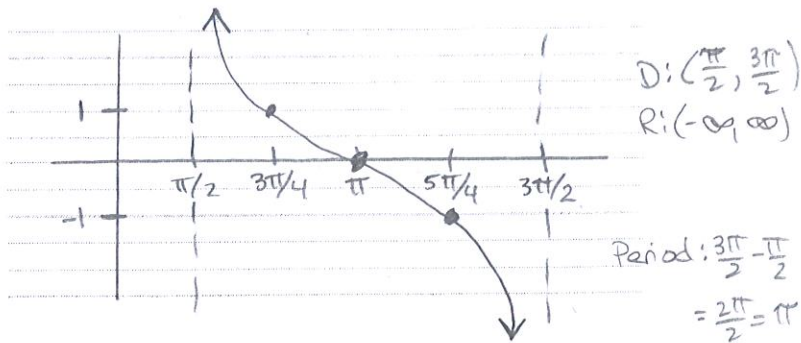
$x - \frac{\pi}{2} = 0$

$x = \frac{\pi}{2}$

$x - \frac{\pi}{2} = \pi$

$x = \frac{2\pi}{2} + \frac{\pi}{2}$

$x = \frac{3\pi}{2}$



6. $y = -\tan\left(x - \frac{\pi}{2}\right)$ * Reflect

$x - \frac{\pi}{2} = -\frac{\pi}{2}$

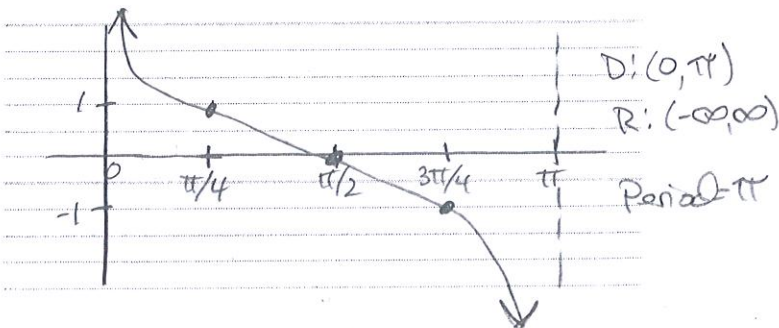
$x = -\frac{\pi}{2} + \frac{\pi}{2}$

$x = 0$

$x - \frac{\pi}{2} = \frac{\pi}{2}$

$x = \frac{\pi}{2} + \frac{\pi}{2}$

$x = \pi$



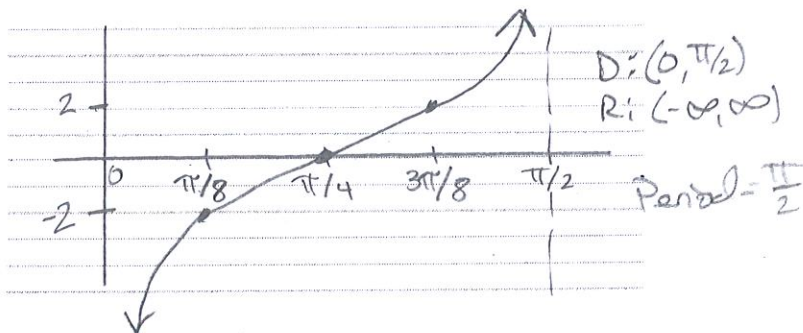
7. $y = -2\cot(2x)$ * Reflect

$2x = 0$

$x = 0$

$2x = \pi$

$x = \frac{\pi}{2}$



8. $y = 3\tan(3x)$

$\left(\frac{1}{3}\right)3x = -\frac{\pi}{2}\left(\frac{1}{3}\right)$

$x = -\frac{\pi}{6}$

$3x = \frac{\pi}{2}\left(\frac{1}{3}\right)$

$x = \frac{\pi}{6}$

