

Find the vertical asymptotes of the following functions:

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

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

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

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

2) $y = 2 \cot \frac{1}{4}x$

$\frac{1}{4}x = 0$

$x = 0, 4\pi$

3) $y = 4 \tan \pi x$

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

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

4) $f(x) = -\cot 2x - 3$

$2x = \pi$

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

Sketch a graph of the following functions:

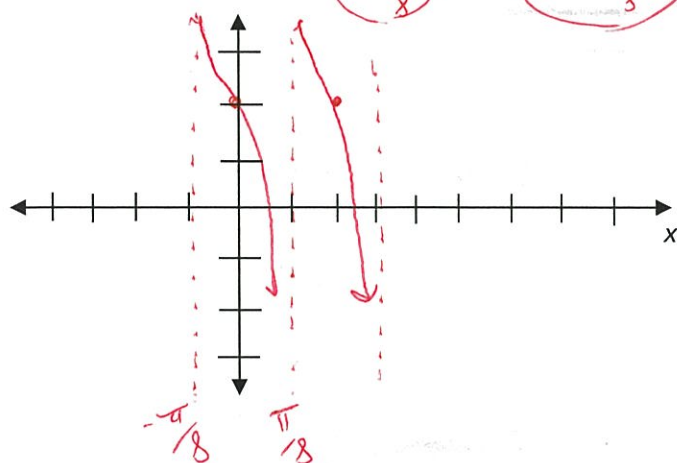
5) $y = -\tan 4x + 2$

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

$x = \frac{\pi}{8}$

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

$x = -\frac{\pi}{8}$



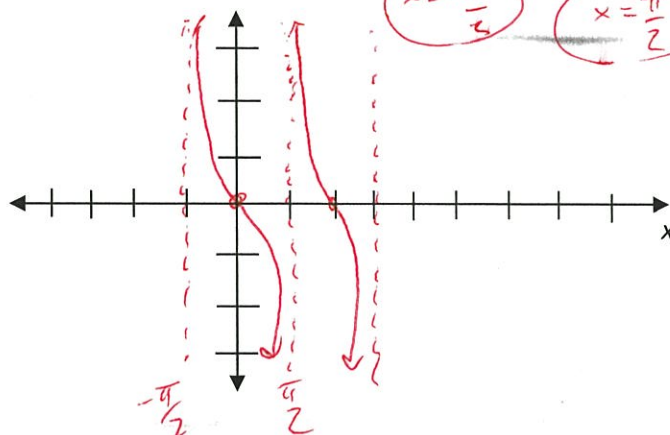
6) $y = 2 \cot\left(x + \frac{\pi}{2}\right)$

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

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

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

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



Find the vertical asymptotes of the following functions:

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

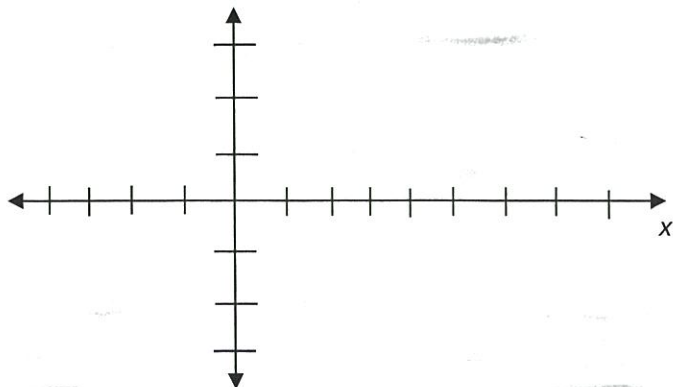
2) $y = 2 \cot \frac{1}{4}x$

3) $y = 4 \tan \pi x$

4) $f(x) = -\cot 2x - 3$

Sketch a graph of the following functions:

5) $y = -\tan 4x + 2$



6) $y = 2 \cot\left(x + \frac{\pi}{2}\right)$

