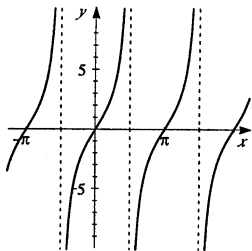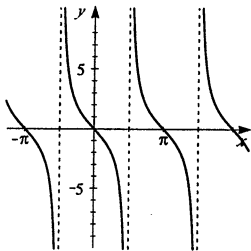39. From the graph we see that the amplitude is $\frac{1}{2}$, the period is 1, and there is a phase shift of $-\frac{1}{3}$. Therefore, the function is $y = \frac{1}{2}\sin 2\pi(x + \frac{1}{3})$.
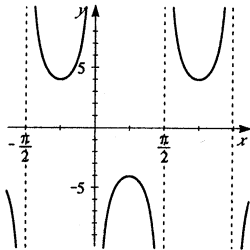
41. $y = 3\tan x$, period $= \pi$

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

45. $y = 4\csc(2x - \pi) = 4\csc 2(x - \frac{\pi}{2})$,

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

47. $y = \tan\left(\frac{1}{2}x - \frac{\pi}{8}\right) = \tan\frac{1}{2}(x - \frac{\pi}{4})$,

period $= \dfrac{\pi}{\left(\frac{1}{2}\right)} = 2\pi$