6. $f(x) = \sin 2x \quad [-\pi, \pi]$ ($a = -\pi$, $b = \pi$)

$f(a) = f(-\pi) = \sin 2(-\pi) = \sin(-2\pi) = -\sin 2\pi = 0$

$f(b) = f(\pi) = \sin 2(\pi) = 0$

① $f'(x) = \cos(2x) \cdot \frac{d}{dx}(2x)$

$= 2\cos(2x)$

② $2\cos(2x) = 0$

$\cos(2x) = 0$

$\cos\frac{\pi}{2} = 0$ $\quad 2x = \frac{\pi}{2}$ $\quad \frac{1}{2}\cdot 2x = \frac{\pi}{2}\cdot\frac{1}{2}$ $\quad x = \frac{\pi}{4}$

$\cos\frac{3\pi}{2} = 0$ $\quad 2x = \frac{3\pi}{2}$ $\quad x = \frac{3\pi}{4}$

$\cos\frac{\pi}{2} + 2\pi = 0$ $\quad \cos\frac{5\pi}{2} = 0$ $\quad 2x = \frac{5\pi}{2}$ $\quad x = \frac{5\pi}{4} = 1\frac{1}{4}\pi$

$\cos\frac{\pi}{2} - 2\pi = 0$ $\quad \cos\frac{-3\pi}{2} = 0$ $\quad 2x = \frac{-3\pi}{2}$ $\quad x = \frac{-3\pi}{4}$

$\cos\frac{3\pi}{2} - 2\pi = 0$ $\quad \cos\frac{-\pi}{2} = 0$ $\quad 2x = \frac{-\pi}{2}$ $\quad x = \frac{-\pi}{4}$