*b) $f(x) = \cos x$ on $[0, 2\pi]$

① cont. on $[0, 2\pi]$ ✓

② dif. on $[0, 2\pi]$ ✓

③ $f(0) = f(2\pi)$

$\cos 0 = \cos 2\pi$ ✓

$f'(x) = -\sin x = 0$

$\sin x = 0$

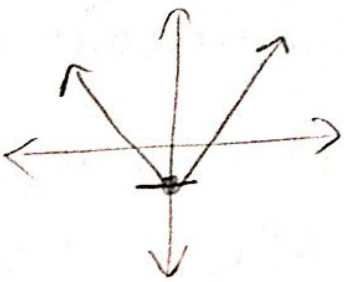
$x = \cancel{0}, \pi, \cancel{2\pi} \ldots$

not in $(0, 2\pi)$

$\boxed{c = \pi}$

RT ☺

*c) $f(x) = |x| - 1$ on $[-1, 1]$



① cont on $[-1, 1]$ ✓

② dif on $[-1, 1]$ NO!

Corner at $x = 0$

RT ☹

* Mean Value Theorem:

Let f be continuous on $[a, b]$ and differentiable on (a, b). Then there exists a $c \in (a, b)$ such that $\frac{f(b) - f(a)}{b - a} = f'(c)$

$\frac{\Delta y}{\Delta x}$

↓ endpoints slope (secant)

slope of tangent ↓ slope @ a point