1/

XAND $\cos\left(\frac{\pi x}{2}\right)$

IN TAYLOR

$$\cos\frac{\pi x}{2} = 1 - \frac{\left(\frac{\pi x}{2}\right)^2}{2!} + \frac{\left(\frac{\pi x}{2}\right)^4}{4!} - \frac{\left(\frac{\pi x}{2}\right)^6}{6!} + \cdots$$

ABOUT $x=0$ → $= \quad) - ($

$$f(x) = f(a) + f'(a)(x-a) + \frac{f''(a)(x-a)^2}{2!} + \cdots$$

$$\cos\left(\frac{\pi x}{2}\right) = \cos(0) + \left(-\frac{\pi}{2}\right)\left(\frac{\pi x}{2} - 0\right) + \left(\frac{-\left(\frac{\pi}{4}^2\right)\left(\frac{\pi x}{2} - 0\right)^2}{2!}\right)$$

ABOUT $a = 0$

$0 \leftarrow (\sin(0) = 0)$

$$+ \left(\frac{\left(\frac{\pi^4}{24}\right)\left(\frac{\pi x}{2} - 0\right)^4}{4!}\right)^2 + \left(-\frac{\left(\frac{\pi^6}{2^6}\right)\left(\frac{\pi x}{2} - 0\right)^6}{6!}\right)^3 + \left(\quad\right)^4$$

$$\cos\left(\frac{\pi x}{2}\right) = 1 - \frac{\pi^4}{8}x^2 + \frac{\pi^8}{11}x^4 - \frac{\pi^{12}}{57}x^6 + \cdots$$

$a = 0$

CONTINUE...

$$(-1)^n \cdot \left(\frac{\pi}{2} \cdot \frac{\pi x}{2}\right)$$

NEXT → HOW TO WRITE GEN. TERM FOR n STEPS