1/a

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

$$f(x) = \sin\frac{\pi}{2}x, \quad a = 0$$

$f(a) = \sin 0 = 0$

$f'(a) = \frac{\pi}{2}\cos 0 = \frac{\pi}{2}$

$f''(a) = -\frac{\pi^2}{4}\sin 0 = 0$

$f'''(a) = -\frac{\pi^3}{16}\cos 0 = -\frac{\pi^3}{16}$

$f^{(4)}(a) = 0$

$f^{(5)}(a) = \frac{\pi^5}{64}\cos 0 = \frac{\pi^5}{64}$

$\vdots$

$f^{(6)}(a) = 0$ $\vdots$

$f^{(7)}(a) = \frac{\pi^7}{256}\cos 0 = \frac{\pi^7}{256}$