

Exempel: Bestäm Taylorutvecklingen till  $f(x) = \sin x - \cos x$  av ordning 2 i  $x = \pi/4$  med restterm på ordoform.

$$\underline{L}: f(x) = f(a) + f'(a)(x-a) + \dots + \frac{f^{(n)}(a)}{n!} (x-a)^n + O((x-a)^{n+1})$$

$$f(x) = f(\pi/4) + f'(\pi/4)(x-\pi/4) + \frac{f''(\pi/4)}{2} (x-\pi/4)^2 + O((x-\pi/4)^3).$$

$$f(\pi/4) = 0. \quad f'(x) = \cos x + \sin x, \quad f'(\pi/4) = \sqrt{2}$$

$$f''(x) = -\sin x + \cos x, \quad f''(\pi/4) = 0$$

$$f(x) = \sqrt{2} (x - \pi/4) + O((x - \pi/4)^3)$$