(2) $f(r) = 3e^r - \cos(r) + \frac{1}{r}$

$= 3e^r - \cos(r) + r^{-1}$

$f'(r) = 3e^r + \sin(r) - r^{-1-1} = \boxed{3e^r + \sin(r) - \frac{1}{r^2}}$

(4) $y = x^4 \tan(x)$

$\boxed{\frac{dy}{dx} = 4x^3\tan(x) + x^4\sec^2(x)}$ (product rule)

(14) $y = \frac{x\cos(x)}{\sin(x)+1}$

$$\frac{dy}{dx} = \frac{\frac{d}{dx}\left[x\cos(x)\right](\sin(x)+1) - x\cos(x)\frac{d}{dx}\left[\sin(x)+1\right]}{(\sin(x)+1)^2}$$

$$= \boxed{\frac{(\cos(x) - x\sin(x))(\sin(x)+1) - x\cos(x)\cos(x)}{(\sin(x)+1)^2}}$$

(18) Let $f(x) = \tan(x)$. Then

$$\lim_{h\to 0} \frac{\tan(x+h) - \tan(x)}{h} = f'(x) = \sec^2(x)$$

Therefore $\lim_{h\to 0} \frac{\tan(\frac{\pi}{4}+h) - \tan(\frac{\pi}{4})}{h} = f'(\frac{\pi}{4})$

$$= \sec^2\left(\frac{\pi}{4}\right) = \left(\frac{1}{\cos(\frac{\pi}{4})}\right)^2 = \left(\frac{1}{\frac{\sqrt{2}}{2}}\right)^2 = \boxed{2}$$