(1) [3 points]   Find the derivative of $H(t) = \tanh(e^t)$.

(2) [3 points]   Find the derivative of $y = e^{\cosh(7x)}$.

(3) [5 points] Find the limit: $\displaystyle\lim_{x\to 1}\frac{1-x+\ln x}{1+\cos(\pi x)}$.

(4) [4 points] Find f if $f'(x) = \sqrt{x}(6+5x)$ and $f(1) = 10$.