

(1) [5] Find the limit:

$$\lim_{t \rightarrow 0} \frac{5^t - 3^t}{t}$$

(2) [5] Find the limit:

$$\lim_{x \rightarrow 1} \frac{1 - x - \ln(x)}{1 + \cos(\pi x)}$$

(3) [5] Find the limit:

$$\lim_{x \rightarrow 0} (1 - 2x)^{1/x}$$