

$$571. \lim_{x \rightarrow 0} \frac{\sqrt{1+x \sin x} - 1}{e^{x^2} - 1}.$$

$$572. \lim_{x \rightarrow 0} \frac{\cos(xe^x) - \cos(xe^{-x})}{x^3}.$$

$$573. \lim_{x \rightarrow 0} (2e^{x/(x+1)} - 1)^{(x^2+1)/x}. \quad 574. \lim_{x \rightarrow 1} (2-x)^{\sec(\pi x/2)}.$$

$$575. \lim_{x \rightarrow \pi/2} \frac{1 - \sin^{\alpha+\beta} x}{\sqrt{(1 - \sin^{\alpha} x)(1 - \sin^{\beta} x)}} \quad (\alpha > 0, \beta > 0).$$

$$576. \text{ а) } \lim_{x \rightarrow 0} \frac{\operatorname{sh} x}{x}; \quad \text{ б) } \lim_{x \rightarrow 0} \frac{\operatorname{ch} x - 1}{x^2};$$

$$\text{ в) } \lim_{x \rightarrow 0} \frac{\operatorname{th} x}{x} \quad (\text{см. пример 340}).$$

$$576.1. \lim_{x \rightarrow 0} \frac{\operatorname{sh}^2 x}{\ln(\operatorname{ch} 3x)} \quad (\text{см. пример 340}).$$

$$577. \lim_{x \rightarrow +\infty} \frac{\operatorname{sh} \sqrt{x^2 + x} - \operatorname{sh} \sqrt{x^2 - x}}{\operatorname{ch} x}.$$

$$577.1. \text{ а) } \lim_{x \rightarrow a} \frac{\operatorname{sh} x - \operatorname{sh} a}{x - a}; \quad \text{ б) } \lim_{x \rightarrow a} \frac{\operatorname{ch} x - \operatorname{ch} a}{x - a}.$$

$$577.2. \lim_{x \rightarrow 0} \frac{\ln \operatorname{ch} x}{\ln \cos x}. \quad 578. \lim_{x \rightarrow +\infty} (x - \ln \operatorname{ch} x).$$

$$579. \lim_{x \rightarrow 0} \frac{e^{\sin 2x} - e^{\sin x}}{\operatorname{th} x}.$$

$$580. \lim_{n \rightarrow \infty} \left(\frac{\operatorname{ch} \frac{\pi}{n}}{\cos \frac{\pi}{n}} \right)^{n^2}.$$

$$581. \lim_{x \rightarrow \infty} \arcsin \frac{1-x}{1+x}.$$

$$582. \lim_{x \rightarrow +\infty} \arccos(\sqrt{x^2 + x} - x).$$

$$583. \lim_{x \rightarrow 2} \operatorname{arctg} \frac{x-4}{(x-2)^2}. \quad 584. \lim_{x \rightarrow -\infty} \operatorname{arctg} \frac{x}{\sqrt{1+x^2}}.$$

$$585. \lim_{h \rightarrow 0} \frac{\operatorname{arctg}(x+h) - \operatorname{arctg} x}{h}.$$