① вар.

1) а) $\lim\limits_{x\to 1}\left(\frac{3}{1-\sqrt{x}}-\frac{2}{1-\sqrt[3]{x}}\right)=$

б) $\lim\limits_{x\to 0}\frac{\sqrt[4]{\cos 4x}-1}{\sin^2 8x}=$

в) $\lim\limits_{x\to \frac{\pi}{2}}\frac{e^{\sin 2x}-e^{\operatorname{tg} 2x}}{\ln\frac{2}{\pi}}$

2) $f(x)=\sqrt[3]{x^2}-2\sqrt[3]{x}+1$

$x_0=1$

② вар.

а) $\lim\limits_{x\to 1}\frac{\sqrt[4]{x}-1}{\sqrt[3]{x}-1}=$

б) $\lim\limits_{x\to \frac{\pi}{2}}\frac{2^{\cos^2 x}-1}{\ln\sin x}=$

в) $\lim\limits_{x\to 2}\frac{2^{\sin\pi x}-1}{\ln(x^2-2x+1)}$

② $f(x)=\frac{3\cos^2 x}{e^{2x}-\cos x}$, $x_0=0$

③

$$f(x) = \begin{cases} 4^x, & x < 1 \\ 5 - x^2, & 1 < x \leq 4 \\ \lg(x-4), & x > 4 \end{cases}$$

③

$$f(x) = \begin{cases} e^x, & x \leq 0 \\ \frac{1}{x}, & 0 < x < 5 \\ 3x+4, & x \geq 5 \end{cases}$$

④ $$\lim_{x \to \infty} \left(\frac{x^2+5}{x^2+3} \right)^{4x^2} =$$

$$\lim_{x \to 0} (\cos x + \sin x)^{\frac{1}{x}}$$

⑤ $$f(x) = 2^{\frac{x}{x^2-1}}$$

$$f(x) = 2^{x - \frac{1}{x}}$$