

<p style="text-align: center;">1</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow 3} \frac{x^3 - 4x^2 - 3x + 18}{x^3 - 5x^2 + 3x + 9}$ $\lim_{x \rightarrow +\infty} x^2(\sqrt{x^4 + 1} - \sqrt{x^4 - 3})$ $\lim_{x \rightarrow \infty} \left(\frac{2x + 3}{2x + 1}\right)^{\frac{x}{4} + 2}$ $\lim_{x \rightarrow 0} \frac{\ln(1 + \operatorname{tg}^2 2x)}{\sqrt[3]{1 + 2 \sin^2 x} - 1}$ $\lim_{x \rightarrow \frac{\pi}{4}} \frac{1 + \cos 2x - \sin 2x}{\cos x - \sin x}$ $\lim_{x \rightarrow +\infty} \frac{\sqrt[3]{x^5 + 7} + \sqrt[3]{x^4 + 2}}{\sqrt{x^4 + x} + \sqrt{x + 3}}$ 	<p style="text-align: center;">2</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow -3} \frac{x^2 + 2x - 3}{x^3 + 4x^2 + 3x}$ $\lim_{x \rightarrow \infty} \left(\frac{3x - 1}{3x + 5}\right)^{2x + 4}$ $\lim_{x \rightarrow +\infty} \sqrt{x + 2}(\sqrt{x + 3} - \sqrt{x - 4})$ $\lim_{x \rightarrow 0} \frac{e^{2 \sin^2 x} - 1}{(2x - 1)x}$ $\lim_{x \rightarrow \frac{\pi}{2}} \frac{\cos 3x - \cos x}{\ln(1 + 2 \operatorname{ctg} x)}$ $\lim_{x \rightarrow +\infty} \frac{\ln(x + 2) - \ln x}{\operatorname{tg} \frac{1}{x}}$ 	<p style="text-align: center;">3</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow -1} \frac{x^3 - 2x - 1}{x^4 + 2x + 1}$ $\lim_{x \rightarrow +\infty} (\sqrt{x^2 + 3x - 2} - \sqrt{x^2 - x})$ $\lim_{x \rightarrow \infty} \left(\frac{13x + 3}{13x - 10}\right)^{2(x-1)}$ $\lim_{x \rightarrow 0} \frac{1 - \cos 8x}{\sqrt{1 + \operatorname{tg}^2 x} - 1}$ $\lim_{x \rightarrow -2} \frac{e^{x^2 - 4} - 1}{\ln x - \ln 2}$ $\lim_{x \rightarrow +\infty} \frac{\sqrt{x^4 + 2x} + \sqrt[3]{x^6 + 4}}{\sqrt[4]{x^7} + 2\sqrt{x^5 + 3x^2}}$
<p style="text-align: center;">4</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow 1} \frac{x^2 - 1}{2x^2 - x - 1}$ $\lim_{x \rightarrow +\infty} \frac{\sqrt{x^4 + 9} - \sqrt{x^4 + 5x^3}}{x}$ $\lim_{x \rightarrow \infty} \left(\frac{10x - 2}{10x + 3}\right)^{5(x+1)}$ $\lim_{x \rightarrow 0} \frac{2(e^{\pi x} - 1)}{\sqrt[3]{1 + 3 \sin x} - 1}$ $\lim_{x \rightarrow 1} \frac{\cos \frac{\pi x}{2}}{1 - \sqrt{x}}$ $\lim_{x \rightarrow +\infty} \frac{2 \cdot 5^{x-1} - 4 \cdot 6^{x+1}}{3 \cdot 6^{x-1} + 5^{x+1}}$ 	<p style="text-align: center;">5</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow -3} \frac{x^3 + 7x^2 + 15x + 9}{x^3 + 8x^2 + 21x + 18}$ $\lim_{x \rightarrow \infty} x^2(\sqrt{x^6 - x} - \sqrt{x^6 - 8})$ $\lim_{x \rightarrow \infty} \left(\frac{x^2 + 6}{x^2 + 4}\right)^{-\frac{3x^2 + 4}{2}}$ $\lim_{x \rightarrow 0} \frac{e^{2 \operatorname{tg} x} - 1}{\sqrt{1 + 6x} - 1}$ $\lim_{x \rightarrow 2} \frac{\ln x^2 - \ln 4}{\sin \pi x}$ $\lim_{x \rightarrow +\infty} \frac{\sqrt{x + 3} - \sqrt[3]{8x^3 + 2}}{\sqrt[3]{x^2 + 1} + \sqrt[5]{x^5 + 2}}$ 	<p style="text-align: center;">6</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow 10} \frac{5x^2 - 51x + 10}{x^2 - 12x + 20}$ $\lim_{x \rightarrow \infty} x^2(\sqrt[3]{x^3 + 5} - x)$ $\lim_{x \rightarrow \infty} \left(\frac{4x + 3}{4x - 1}\right)^{-\frac{2x+1}{3}}$ $\lim_{x \rightarrow 0} \frac{\operatorname{tg} \left(\pi \left(1 + \frac{x}{2}\right)\right)}{\ln(\sin x + 1)}$ $\lim_{x \rightarrow \pi} \frac{e^{\sin^2 x} - 1}{1 + \cos x}$ $\lim_{x \rightarrow \infty} \frac{(x + 1)^2 + (x + 2)^2}{(x + 2)^3 - (x - 2)^3}$

<p style="text-align: center;">7</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow 2} \frac{x^3 - x^2 - 4}{x^3 - 3x^2 + 4x - 4}$ $\lim_{x \rightarrow +\infty} (\sqrt{x^2 + 3x} - \sqrt{x^2 + 4})$ $\lim_{x \rightarrow \infty} \left(\frac{3x + 7}{3x + 2} \right)^{\frac{2x+3}{5}}$ $\lim_{x \rightarrow 0} \frac{e^{3 \operatorname{tg} x} - 1}{4^x - 1}$ $\lim_{x \rightarrow \pi} \frac{1 - \cos 8x}{\sqrt{\operatorname{tg}^2 x + 1} - 1}$ $\lim_{x \rightarrow +\infty} \frac{2 \cdot 3^x - 4 \cdot 5^{x-1}}{5^{x-2} - 7 \cdot 3^{x+1}}$ 	<p style="text-align: center;">8</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow 8} \frac{3x^2 - 40x + 128}{x^2 + 2x - 80}$ $\lim_{x \rightarrow \infty} (\sqrt{x^2 + 4x} - \sqrt{x^2 - 4x})$ $\lim_{x \rightarrow \infty} \left(\frac{4 - 6x}{5 - 6x} \right)^{\frac{4x-1}{2}}$ $\lim_{x \rightarrow 0} \frac{\operatorname{tg} x - \sin x}{x(1 - \cos 3x)}$ $\lim_{x \rightarrow 3} \frac{e^x - e^3}{1 - \sqrt{x - 2}}$ $\lim_{x \rightarrow +\infty} \frac{\sqrt[3]{8x^3 + 3} + \sqrt[4]{x^4 + 2x}}{\sqrt[4]{3x^4 + x} - \sqrt[3]{x + 5}}$ 	<p style="text-align: center;">9</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow -6} \frac{3x^2 + 17x - 6}{x^3 + 9x^2 + 18x}$ $\lim_{x \rightarrow +\infty} (\sqrt{4x^2 + 6x - 3} - 2x - 1)$ $\lim_{x \rightarrow \infty} \left(\frac{5x + 7}{5x + 2} \right)^{-4x+3}$ $\lim_{x \rightarrow 2} \frac{\operatorname{tg}(x^2 - x - 2)}{\sin \pi x}$ $\lim_{x \rightarrow 0} \frac{\ln(1 + 2 \sin^2 x)}{\sqrt[4]{1 - 3x^2} - 1}$ $\lim_{x \rightarrow -\infty} \frac{3^{x+1} + 2 \cdot 4^{x-2}}{3 \cdot 4^{x-1} + 5 \cdot 3^{x+2}}$
<p style="text-align: center;">22</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow 2} \frac{x^3 - x^2 - 4}{x^3 - 3x^2 + 4x - 4}$ $\lim_{x \rightarrow +\infty} (\sqrt{x^2 + 3x} - \sqrt{x^2 + 4})$ $\lim_{x \rightarrow \infty} \left(\frac{3x + 7}{3x + 2} \right)^{\frac{2x+3}{5}}$ $\lim_{x \rightarrow 0} \frac{e^{3 \operatorname{tg} x} - 1}{4^x - 1}$ $\lim_{x \rightarrow \pi} \frac{1 - \cos 8x}{\sqrt{\operatorname{tg}^2 x + 1} - 1}$ $\lim_{x \rightarrow +\infty} \frac{2 \cdot 3^x - 4 \cdot 5^{x-1}}{5^{x-2} - 7 \cdot 3^{x+1}}$ 	<p style="text-align: center;">23</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow 8} \frac{3x^2 - 40x + 128}{x^2 + 2x - 80}$ $\lim_{x \rightarrow \infty} (\sqrt{x^2 + 4x} - \sqrt{x^2 - 4x})$ $\lim_{x \rightarrow \infty} \left(\frac{4 - 6x}{5 - 6x} \right)^{\frac{4x-1}{2}}$ $\lim_{x \rightarrow 0} \frac{\operatorname{tg} x - \sin x}{x(1 - \cos 3x)}$ $\lim_{x \rightarrow 3} \frac{e^x - e^3}{1 - \sqrt{x - 2}}$ $\lim_{x \rightarrow +\infty} \frac{\sqrt[3]{8x^3 + 3} + \sqrt[4]{x^4 + 2x}}{\sqrt[4]{3x^4 + x} - \sqrt[3]{x + 5}}$ 	<p style="text-align: center;">24</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow -6} \frac{3x^2 + 17x - 6}{x^3 + 9x^2 + 18x}$ $\lim_{x \rightarrow +\infty} (\sqrt{4x^2 + 6x - 3} - 2x - 1)$ $\lim_{x \rightarrow \infty} \left(\frac{5x + 7}{5x + 2} \right)^{-4x+3}$ $\lim_{x \rightarrow 2} \frac{\operatorname{tg}(x^2 - x - 2)}{\sin \pi x}$ $\lim_{x \rightarrow 0} \frac{\ln(1 + 2 \sin^2 x)}{\sqrt[4]{1 - 3x^2} - 1}$ $\lim_{x \rightarrow -\infty} \frac{3^{x+1} + 2 \cdot 4^{x-2}}{3 \cdot 4^{x-1} + 5 \cdot 3^{x+2}}$
<p style="text-align: center;">19</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow 2} \frac{x^3 - x^2 - 4}{x^3 - 3x^2 + 4x - 4}$ $\lim_{x \rightarrow +\infty} (\sqrt{x^2 + 3x} - \sqrt{x^2 + 4})$ $\lim_{x \rightarrow \infty} \left(\frac{3x + 7}{3x + 2} \right)^{\frac{2x+3}{5}}$ $\lim_{x \rightarrow 0} \frac{e^{3 \operatorname{tg} x} - 1}{4^x - 1}$ $\lim_{x \rightarrow \pi} \frac{1 - \cos 8x}{\sqrt{\operatorname{tg}^2 x + 1} - 1}$ $\lim_{x \rightarrow +\infty} \frac{2 \cdot 3^x - 4 \cdot 5^{x-1}}{5^{x-2} - 7 \cdot 3^{x+1}}$ 	<p style="text-align: center;">20</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow 8} \frac{3x^2 - 40x + 128}{x^2 + 2x - 80}$ $\lim_{x \rightarrow \infty} (\sqrt{x^2 + 4x} - \sqrt{x^2 - 4x})$ $\lim_{x \rightarrow \infty} \left(\frac{4 - 6x}{5 - 6x} \right)^{\frac{4x-1}{2}}$ $\lim_{x \rightarrow 0} \frac{\operatorname{tg} x - \sin x}{x(1 - \cos 3x)}$ $\lim_{x \rightarrow 3} \frac{e^x - e^3}{1 - \sqrt{x - 2}}$ $\lim_{x \rightarrow +\infty} \frac{\sqrt[3]{8x^3 + 3} + \sqrt[4]{x^4 + 2x}}{\sqrt[4]{3x^4 + x} - \sqrt[3]{x + 5}}$ 	<p style="text-align: center;">21</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow -6} \frac{3x^2 + 17x - 6}{x^3 + 9x^2 + 18x}$ $\lim_{x \rightarrow +\infty} (\sqrt{4x^2 + 6x - 3} - 2x - 1)$ $\lim_{x \rightarrow \infty} \left(\frac{5x + 7}{5x + 2} \right)^{-4x+3}$ $\lim_{x \rightarrow 2} \frac{\operatorname{tg}(x^2 - x - 2)}{\sin \pi x}$ $\lim_{x \rightarrow 0} \frac{\ln(1 + 2 \sin^2 x)}{\sqrt[4]{1 - 3x^2} - 1}$ $\lim_{x \rightarrow -\infty} \frac{3^{x+1} + 2 \cdot 4^{x-2}}{3 \cdot 4^{x-1} + 5 \cdot 3^{x+2}}$

<p>10</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow 3} \frac{2x^3 - 4x^2 - 6x}{x^2 + 5x - 24}$ $\lim_{x \rightarrow +\infty} \sqrt{x+2}(\sqrt{x+3} - \sqrt{x-4})$ $\lim_{x \rightarrow \infty} \left(\frac{4x+3}{4x-5}\right)^{\frac{3x+4}{3}}$ $\lim_{x \rightarrow \frac{\pi}{2}} \frac{1 - \sin^3 x}{\cos^2 x}$ $\lim_{x \rightarrow 0} \frac{e^{5x} - e^{-3 \sin x}}{\ln(1 + 3 \operatorname{tg} x)}$ $\lim_{x \rightarrow \infty} \frac{\sqrt{6x^4 - 2x} + \sqrt[3]{x^2 + 2}}{\sqrt[4]{x^9 + 2x^3} - \sqrt{x+1}}$ 	<p>11</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow 3} \frac{2x^2 - 7x + 3}{x^3 - 5x - 12}$ $\lim_{x \rightarrow +\infty} \frac{\sqrt{x^3 + 3} - \sqrt{x^3 - 2x^2}}{\sqrt{x}}$ $\lim_{x \rightarrow \infty} \left(\frac{6x+11}{6x-1}\right)^{\frac{3x+5}{2}}$ $\lim_{x \rightarrow 0} \frac{\ln(1 + \sin 4x)}{2 \operatorname{tg} 2x - 1}$ $\lim_{x \rightarrow 1} \frac{1 - x^2}{\sin 3\pi x}$ $\lim_{x \rightarrow +\infty} \frac{4 \cdot 2^x - 3 \cdot 4^x}{5 \cdot 2^x + 6 \cdot 4^x}$ 	<p>12</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow -1} \frac{3x^2 + 4x + 1}{2x^3 + 3x^2 + 2x + 1}$ $\lim_{x \rightarrow -\infty} (\sqrt{x^2 + x} - \sqrt{x^2 - 4x})$ $\lim_{x \rightarrow \infty} \left(\frac{3x+5}{3x-1}\right)^{\frac{3}{2}x-1}$ $\lim_{x \rightarrow 0} \frac{1 - \sqrt{1 - \operatorname{tg} x}}{\sin 4x + 2x}$ $\lim_{x \rightarrow +\infty} \frac{1 - \cos \frac{1}{x}}{\ln(1 + x^2) - 2 \ln x}$ $\lim_{x \rightarrow 3} \frac{\sqrt{x+13} - 2\sqrt{x+1}}{e^{x^2-9} - 1}$
<p>28</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow -1} \frac{x^3 - 2x^2 - x + 2}{x^3 + 2x^2 - x - 2}$ $\lim_{x \rightarrow +\infty} \frac{\sqrt{x^3 + 4x^2} - \sqrt{x^3 + x^2 - 2}}{\sqrt{2x+5}}$ $\lim_{x \rightarrow \infty} \left(\frac{4x+13}{4x+1}\right)^{\frac{2x-1}{3}}$ $\lim_{x \rightarrow 0} \frac{e^{2 \sin^2 x} - 1}{(2x-1) \ln(1 + \operatorname{tg} x)}$ $\lim_{x \rightarrow \pi} \frac{\sqrt[3]{1 + 2 \operatorname{tg}^2 x} - 1}{1 - \cos 2x}$ $\lim_{x \rightarrow \infty} \frac{\sqrt{3x^5 + 2x} + \sqrt[3]{x^3 + 2}}{\sqrt[4]{4x^{10} - x} - \sqrt{x^2 + 1}}$ 	<p>29</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow -1} \frac{x^3 - 3x - 2}{x^4 + 2x^3 + x^2}$ $\lim_{x \rightarrow \infty} \frac{x^2 \sqrt{x^2 + 5} - \sqrt{x^6 - 2}}{x}$ $\lim_{x \rightarrow \infty} \left(\frac{4x^2 - 1}{4x^2 + 3}\right)^{1-2x^2}$ $\lim_{x \rightarrow 0} \frac{\cos 2x - \cos 4x}{1 - \cos 4x}$ $\lim_{x \rightarrow 2} \frac{\ln(5 - 2x)}{\sqrt{10 - 3x} - 2}$ $\lim_{x \rightarrow +\infty} \frac{3 \cdot 3^{-x} + 5 \cdot 6^{-x}}{7 \cdot 3^{-x} - 4 \cdot 6^{-x}}$ 	<p>30</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow -2} \frac{x^4 + 2x^3 - x - 2}{x^2 + 3x + 2}$ $\lim_{x \rightarrow +\infty} \frac{\sqrt{(x+1)^3} - \sqrt{x^3 + 3x}}{\sqrt{x}^{\frac{2 \operatorname{tg} x + 3}{3}}}$ $\lim_{x \rightarrow \frac{\pi}{2}} \left(\frac{\operatorname{tg} x + 4}{\operatorname{tg} x - 2}\right)^{\frac{2 \operatorname{tg} x + 3}{3}}$ $\lim_{x \rightarrow 0} \frac{(e^{2x} - e^x)^2}{\operatorname{tg}^2 x}$ $\lim_{x \rightarrow \frac{\pi}{3}} \frac{1 - 2 \cos x}{\sin(\pi - 3x)}$ $\lim_{x \rightarrow +\infty} \frac{4 \cdot 6^{-2x} + 2^{-x}}{3 \cdot 5^{-3x} + 2^{2-x}}$
<p>25</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow 3} \frac{x^3 - 4x^2 - 3x + 18}{x^3 - 5x^2 + 3x + 9}$ $\lim_{x \rightarrow +\infty} \frac{\sqrt{x^3 + 1} - \sqrt{x^3 + 3x^2}}{\sqrt{x+2}}$ $\lim_{x \rightarrow \infty} \left(\frac{7x+3}{7x-1}\right)^{\frac{2x+3}{4}}$ $\lim_{x \rightarrow 0} \frac{\sqrt{1 + \operatorname{tg} x} - \sqrt{1 + \sin x}}{x^3}$ $\lim_{x \rightarrow \frac{\pi}{4}} \frac{\sin x - \cos x}{1 - \operatorname{tg}^3 x}$ $\lim_{x \rightarrow +\infty} \frac{\sqrt{4x^2 + 5} + \sqrt{9x^2 + x + 3}}{\sqrt[4]{16x^4 + x^3} + \sqrt{9x^2 + x + 3}}$ 	<p>26</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow 1} \frac{x^3 - 3x + 2}{x^3 - x^2 - x + 1}$ $\lim_{x \rightarrow +\infty} (\sqrt{x^2 + 3x} - \sqrt{2x^2 + 4})$ $\lim_{x \rightarrow \infty} \left(\frac{1 - 3x}{4 - 3x}\right)^{\frac{4x-5}{2}}$ $\lim_{x \rightarrow -8} \frac{\sqrt{1-x} - 3}{2 + \sqrt[3]{x}}$ $\lim_{x \rightarrow \frac{\pi}{6}} \frac{\ln \sin 3x}{(6x - \pi)^2}$ $\lim_{x \rightarrow +\infty} \frac{\sqrt{x-1} - \sqrt{x^2+1}}{\sqrt[3]{8x^3+x} + \sqrt{x+2}}$ 	<p>27</p> <ol style="list-style-type: none"> $\lim_{x \rightarrow 2} \frac{x^3 - 6x^2 + 12x - 8}{x^3 - 3x^2 + 4}$ $\lim_{x \rightarrow +\infty} \frac{x^3 + 5 - \sqrt{x^6 + 3x^2 + 1}}{\sqrt{x+4}^{\frac{2 \operatorname{ctg} x + 4}{3}}}$ $\lim_{x \rightarrow 0} \left(\frac{\operatorname{ctg} x + 5}{\operatorname{ctg} x - 1}\right)^{\frac{2 \operatorname{ctg} x + 4}{3}}$ $\lim_{x \rightarrow 0} \frac{\sqrt{x^2 + 2} - \sqrt{2}}{\sqrt{x^2 + 1} - 1}$ $\lim_{x \rightarrow 1} \frac{\ln(6 - 5x)}{\sqrt{4 - 3x} - 1}$ $\lim_{x \rightarrow +\infty} \frac{\sqrt{3x^3 + 6x} + 2\sqrt{x+5}}{\sqrt[3]{6x^3 + 2} + \sqrt{x^2 + x}}$