1. $lim_{x\to\infty} 2 \cdot x + 5$

$$\begin{aligned} lim_{x\to\infty} 2 \cdot x + 5 &= lim_{x\to\infty} 2 \cdot x + lim_{x\to\infty} 5 \\ &= \infty \end{aligned}$$

2. $lim_{x\to\infty} logx^5$

$$limg_{x\to\infty} 5logx = \infty$$

3. $lim_{x\to\infty} logx$

$$lim_{x\to-\infty} logx = undefined$$

4. $lim_{x\to 0+} logx$

$$lim_{x\to 0} logx = \infty$$

5. $lim_{x\to\infty} \frac{6\cdot x+2}{x^3+5\cdot x}$

$$\begin{aligned} lim_{x\to\infty} \frac{6 \cdot x + 2}{x^3 + 5 \cdot x} &= \frac{6}{x^2} \\ &= 0 \end{aligned}$$

6. $lim_{x\to\infty} \frac{x^2+5\sqrt{x}}{logx}$

$$\begin{aligned} lim_{x\to\infty} \frac{x^2 + 5\sqrt{x}}{logx} &= lim_{x\to\infty} \frac{x^2}{logx} \\ &= \infty \end{aligned}$$

7. $lim_{x\to\infty} \frac{x^{\frac{3}{2}}+x^2 logx}{4x^2(logx)^2+x\sqrt{logx}}$

$$\begin{aligned} lim_{x\to\infty} \frac{x^{\frac{3}{2}} + x^2 logx}{4x^2(logx)^2} &= \frac{1}{4 \cdot log(x)} \\ &= 0 \end{aligned}$$

8. $lim_{x\to\infty}\frac{\sqrt{x^5}+log^2x}{x^{0.1}+log^{7000}x}$

$$\begin{aligned} lim_{x\to\infty}\frac{\sqrt{logx^5}+log^2(x)}{x^{0.1}+log^{7000}x} &= \frac{log^2(x)}{x^{0.1}} \\ &= 0 \end{aligned}$$

9. $lim_{x\to\infty}\frac{loglogx+\sqrt{\sqrt{logx}}}{10logx}$

$$lim_{x\to\infty}\frac{\sqrt{\sqrt{logx}}}{10logx} = 0$$

10. $lim_{x\to\infty}\frac{2^{logx^5}+8^{logx^{\frac{1}{3}}}}{2^{loglog^2x}+6x}$

$$lim_{x\to\infty}\frac{x^5+x}{log^2x+6x} = \infty$$

11. $lim_{x\to\infty}\frac{x^{logx}}{2^x}$

$$\begin{aligned} lim_{x\to\infty}2^{log\frac{x^{logx}}{2^x}} &= lim_{x\to\infty}2^{logxlogx-x} \\ &= lim_{x\to\infty}2^{-x} \\ &= 0 \end{aligned}$$

12. $lim_{x\to\infty}\frac{logx^{logx}}{2^{x^2}}$

$$\begin{aligned} lim_{x\to\infty}2^{logxloglogx-x^2} &= lim_{x\to\infty}2^{-x^2} \\ &= 0 \end{aligned}$$

13. $lim_{x\to\infty}(1+\frac{1}{x})^x$

$$\begin{aligned} lim_{x\to\infty}e^{xln(1+\frac{1}{x})} &= lim_{x\to\infty} \quad e^{\frac{ln(1+\frac{1}{x})}{\frac{1}{x}}} \\ &= lim_{x\to\infty} \quad e^{\frac{\frac{1}{1+\frac{1}{x}}\cdot-\frac{1}{x^2}}{-\frac{1}{x^2}}} \\ &= \quad lim_{x\to\infty}e^{\frac{1}{1+\frac{1}{x}}} \\ &= \quad e \end{aligned}$$

14. $lim_{x\to\infty}\frac{logx^{log^5 x}}{x^{x^x}}$

$$lim_{x\to\infty}e^{ln(\frac{logx^{log^5 x}}{x^{x^x}})} = 0$$