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$$\lim_{x\to+\infty} \sqrt[4]{x^4+5x^3+2x+1} + x$$

$$\lim_{y\to+\infty} \sqrt[4]{y^4-5y^3-2y+1} - y$$

$$a^4-b^4 = (a^2+b^2)(a+b)(a-b)$$

$$\lim_{y\to+\infty} \sqrt[4]{y^4-5y^3-2y+1} - y = \lim_{y\to+\infty} \frac{y^4-5y^3-2y+1-y^4}{\left(\sqrt[4]{y^4-5y^3-2y+1}+y^2\right)\left(\sqrt[4]{y^4-5y^3-2y+1}+y\right)} =$$

$$= \lim_{y\to+\infty} \frac{y^3\left(-5-\frac{2}{y^2}+\frac{1}{y^3}\right)}{y^2\left(\sqrt{1-\frac{5}{y}-\frac{2}{y^3}+\frac{1}{y^4}}+1\right)\cdot y\left(\sqrt[4]{1-\frac{5}{y}-\frac{2}{y^3}+\frac{1}{y^4}}+1\right)} =$$

$$= \frac{-5}{2\cdot 2} = -\frac{5}{4}$$