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$$\lim_{x \rightarrow +\infty} \sqrt{x^3 + x + 1} - x = \left[\frac{1}{x} \cdot \frac{0}{0} \right] \text{ etc}$$

$$= \lim_{x \rightarrow +\infty} x \left(\frac{1}{x} \sqrt{x^3 + x + 1} - 1 \right) =$$

$$= \lim_{x \rightarrow \infty} x \left(\sqrt{\frac{x+1}{x} + \frac{1}{x^2}} - 1 \right) =$$

$$= \infty (\infty) = \infty$$