$$\lim_{x\to 3}\left(\frac{5x^3-4\sqrt{x}}{\sqrt{x^5-87}}\right)$$

$$= \frac{\lim_{x\to 3}(5x^3-4\sqrt{x})}{\lim_{x\to 3}\sqrt{x^5-87}}$$

$$= \frac{5\lim_{x\to 3}(x^3) - 4\lim_{x\to 3}\sqrt{x}}{\sqrt{\lim_{x\to 3}(x^5-87)}}$$

$$= \frac{5(\lim_{x\to 3}x)^3 - 4\sqrt{3}}{\sqrt{\lim_{x\to 3}(x^5)-\lim_{x\to 3}(87)}}$$

$$= \frac{5(3)^3-4\sqrt{3}}{\sqrt{3^5-87}}$$

$$= \frac{135-4\sqrt{3}}{\sqrt{156}}$$

Know: $\lim_{x\to a}(x) = a$

and $\lim_{x\to a}(c) = c$, where c is a constant