

6.23

$$\begin{aligned} \lim_{x \rightarrow 1^-} \frac{4x^2 - 3\eta\mu \frac{\pi x}{2}}{x + 2\sqrt{x} - 3} &= \lim_{x \rightarrow 1^-} \frac{4x^2 - 3\eta\mu \frac{\pi x}{2}}{(\sqrt{x} - 1)(\sqrt{x} + 3)} = \\ &= \lim_{x \rightarrow 1^-} \frac{4x^2 - 3\eta\mu \frac{\pi x}{2}}{\sqrt{x} + 3} \cdot \lim_{x \rightarrow 1^-} \frac{1}{\sqrt{x} - 1} = \frac{4 \cdot 1^2 - 3 \cdot \eta\mu \frac{\pi}{2}}{\sqrt{1} + 3} \cdot (-\infty) = \frac{4 - 1}{4} \cdot (-\infty) = \boxed{-\infty} \end{aligned}$$