$\frac{dx}{\sqrt{x+2\sqrt{x}}}$ 5

$x^{\frac{1}{2}} + 2x^{-\frac{1}{3}}$

$\frac{x^5}{6x^3+2x^2}$ $\int_1^\infty \frac{\tan^{-1}(x)}{1+x^7}$

$\tan^{-1}(x) \leq \frac{\pi}{2}$

$\frac{1}{1+x^7} \leq \frac{1}{x^7}$

$\frac{1}{6}$

$\int_1^\infty \frac{\tan^{-1}(x)}{1+x^7} \leq \int_1^\infty \frac{\frac{\pi}{2}}{x^7}$

$\frac{\pi}{2}\int_1^\infty \frac{1}{x^7}$

By comparison, $\int_1^\infty \frac{\tan^{-1}(x)}{1+x^7}$ converges

$\frac{\pi}{2}\int_1^\infty x^{-7}$

$\lim_{T\to\infty} \frac{\pi}{2}\left(-\frac{1}{6x}\right)\Big|_1^T$

converges to 0