

For $x > 1$, $f(x) = 23 \frac{x+1}{\sqrt{x^4-x}} > 23 \frac{x+1}{\sqrt{x^4}} > \frac{23x}{x^2} = \frac{23}{x}$, so $\int_2^\infty f(x) dx$ diverges by comparison with $\int_2^\infty \frac{1}{x} dx$, which diverges by † with $p = 1 \leq 1$. Thus, $\int_1^\infty f(x) dx = \int_1^2 f(x) dx + \int_2^\infty f(x) dx$ also diverges.

†

$\int_1^\infty \frac{1}{x^p} dx$ is convergent if $p > 1$ and divergent if $p \leq 1$.