

For $x > 0$, $\frac{15x}{x^3+1} < \frac{15x}{x^3} = \frac{15}{x^2}$.

$\int_1^{\infty} \frac{15}{x^2} dx$ is convergent by † with $p = 2 > 1$,

so $\int_1^{\infty} \frac{15x}{x^3+1} dx$ is convergent by the Comparison Theorem.

$\int_0^1 \frac{15x}{x^3+1} dx$ is a constant, so $\int_0^{\infty} \frac{15x}{x^3+1} dx = \int_0^1 \frac{15x}{x^3+1} dx + \int_1^{\infty} \frac{15x}{x^3+1} dx$ is also convergent.

†

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