

**Problem 25**

In each of Problems 25 through 28, determine whether the given integral converges or diverges.

$$\int_0^{\infty} (t^2 + 1)^{-1} dt$$

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**Solution**

$$\begin{aligned} \int_0^{\infty} (t^2 + 1)^{-1} dt &= \tan^{-1} t \Big|_0^{\infty} \\ &= \tan^{-1} \infty - \tan^{-1} 0 \\ &= \frac{\pi}{2} - 0 \\ &= \frac{\pi}{2} \end{aligned}$$

The integral converges.