$e^{-x^2} < e^{-x}$ for $x > 1$

does $\int_1^\infty e^{-x}\,dx$ converge?

$-e^{-x}\Big|_1^\infty = -\left(\frac{1}{e^\infty} - \frac{1}{e^1}\right) = e^{-1}$

$\int_1^\infty e^{-x^2}$ converge? by Comparison Test

Tuesday, January 29, 2019 9:50 AM

$$\int_1^\infty e^{-(x+x^{-1})}\,dx$$

$e^{-x} > e^{-(x+x^{-1})}$ ← so this converges by comparison Test

$\int_1^\infty e^{-x}\,dx$ converges