

Problems on l'Hospital's rule

1. $\lim_{x \rightarrow \infty} x^3 e^{-x^2} = ?$

2. $\lim_{x \rightarrow 0} \frac{\cos x - 1}{x^2} = ?$

3. $\lim_{x \rightarrow \infty} \left(1 - \frac{1}{x}\right)^x = ?$

4. $\lim_{x \rightarrow 0^+} x^{\sqrt{x}} = ?$