integrali impropri 2

1. **1.**

   Calcolare
   $$\lim_{x\to 0^+} \frac{1}{x}\int_x^{2x} \frac{1}{\sin t}\,dt$$

   - $+\infty$ ✓
   - 2
   - 1
   - π

2. **2.**

   Calcolare
   $$\lim_{x\to 0} \frac{1}{x^4}\int_{\sin^2 x}^{\sin x} \frac{2 - t\sin t - 2\cos t}{e^t - 1}\,dt$$

   - $\frac{1}{48}$ ✓
   - $\frac{1}{2}$
   - 1
   - $\frac{1}{6}$

3. **3.**

   Posto
   $$I = \int_{-\infty}^{+\infty} e^{-x^2}\,dx$$
   calcolare
   $$\int_{-\infty}^{+\infty} x^2 e^{-x^2}\,dx.$$

   - $\frac{I}{2}$ ✓
   - I^2
   - $\sqrt{I}$
   - $I - 1$