Problem of the Week Solution

\[ \int_0^{2\pi} e^{i\omega} \, d\omega = \int_0^{2\pi} \frac{e^{i\omega}}{e^{i\omega}} \, d\omega = \int_0^{2\pi} \frac{e^z \, i \, dz}{z^2} \]

\[ = 2\pi \left. \frac{d}{dz} \right|_{z=0} e^z \]

from Cauchy's Integral Formula

\[ = 2\pi \]