$$E(|x - m|) = \int_0^1 \frac{1}{b - a} |x - m| \, dx = \int_0^1 |x - m| \, dx = \int_0^{\frac{1}{2}} \left(\frac{1}{2} - x\right) dx + \int_{\frac{1}{2}}^1 \left(x - \frac{1}{2}\right) dx = \frac{1}{4}$$