

error estimation with the differential

A right triangle with unit hypotenuse has base $b = \frac{1}{\sqrt{2}}$ and height $h = \frac{1}{\sqrt{2}}$. The ratio of height to base for this triangle is $R = \frac{h}{b} = 1$. Suppose we construct such a triangle using a ruler that can only determine each dimension to within a maximum error of ± 0.01 of these values. Estimate the maximum error in this calculated ratio.

► **solution**