Def: If p^* is an approximation to p then

$|p-p^*|$ - absolute error

$\frac{|p-p^*|}{|p|}$ - relative error - tells us how big the error is with regard to the numbers.

Example:

a) If $p = 0.37856.10^1$ and $p^* = 0.379.10^1$

absolute error $= |p-p^*| = 0.44.10^{-2}$

relative error $= \frac{|p-p^*|}{|p|} = \frac{0.44.10^{-2}}{0.37856.10^1} = 0.11622992...$

b) If $p = 0.37856.10^{-3}$ and $p^* = 0.379.10^{-3}$

absolute error $= |p-p^*| = 0.44.10^{-6}$

relative error $= \frac{|p-p^*|}{|p|} = \frac{0.44.10^{-6}}{0.37856.10^{-3}} = 0.11622992...$

same relative error.