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Are the gravimetry measurments necessary in the pricies levelling?

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In this paper we presented the suitable criterion which shows the necessity for taking account of gravity field on the precise leveling observations. Our criterion is based on the required accuracy for gravity measurements which is a function of potential accuracy, height difference and height difference accuracy, and can be obtained via this simple formula$\Delta w = g \times \Delta H$. By taking $\sigma w = 0.01 m^2/s^2$, $\sigma \Delta H = .0001 m$, and ΔH and g maximum values of height difference and gravity acceleration in the desired region, respectively, we can obtain the required accuracy for gravity measurement. By comparing this quantity with the maximum variations of gravity over the region, if these changes are smaller than the accuracy of gravity measurements, we won't require to consider the gravity in the computation of height by way of precise levelling and vice versa.