Question:

You drop a coin to the ground starting from rest, and time its descent with a stopwatch. You do this only once, and observe the time to be 0.6 seconds. Calculate the height through which the coin fell, and comment on the accuracy of your result.

Fair answer:

Use $H = 1/2\ g\ t^2$, with $g = 9.8$ and $t = 0.6$. So $H = 1.76$ meters. I think this is pretty accurate.

Good answer:

Use $H = 1/2\ g\ t^2$, with $g = 9.8\ m/s^2$, and $t = 0.6$ s. This gives $H = 1.76$ meters. Air resistance is low, so the accuracy primarily depends on the time. If I'm off by a tenth of a second either way, I would get 1.23 or 2.40 meters. So H is only reliable to within a half meter or so.

Excellent answer:

If g is constant (and it is--it only varies appreciably if you go far from the surface of the Earth), and air resistance can be ignored (probably true for a coin), then we can use $H = 1/2\ g\ t^2$, with $g = 9.8\ m/s^2$, and $t = 0.6$ s. This gives $H = 1.76$ meters. If I'm off by a tenth of a second either way, I would get 1.23 or 2.40 meters. So H is only reliable to within a half meter or so. A better method would be to repeat a few times and average the results.