Answer on question #57507, Physics / Classical Mechanics

Question A ball is dropped from the top of a 80 m high tower. If after 2 sec of fall the gravity (g = 10m/s^2) disappears, then time time taken to reach ground since the gravity disappeared is?

Solution Lets find how much did the ball fall from the top till the moment gravity disappeared

$$S = gt^2/2 = 10 \cdot 2^2/2 = 20\,m$$

So, its 80-20 = 60 m left to fall. Its velocity was at that moment

$$v = gt = 10 \cdot 2 = 20\,m/s$$

Hence, time taken to reach ground is

$$t_2 = \frac{60}{20} = 3\,s$$