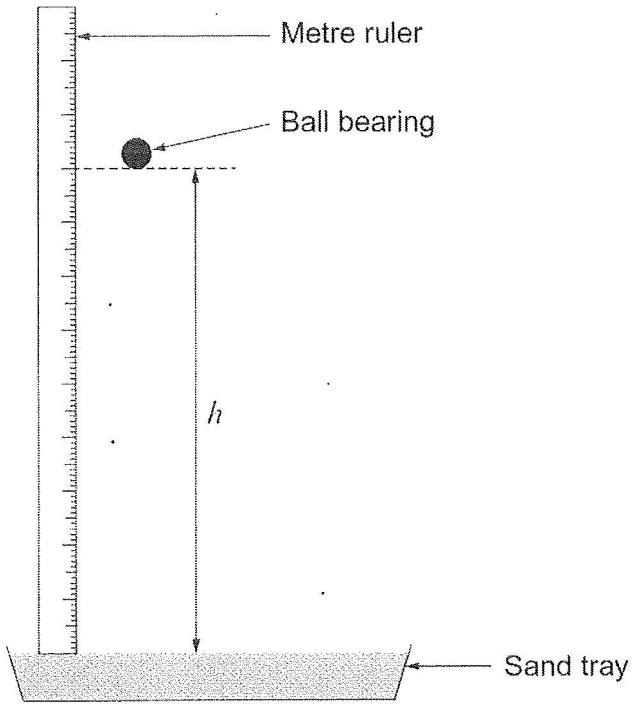
Example 4



Richard dropped the ball bearing and measured the diameter, d, of the crater it left in the sand. He repeated this for a series of different heights, h. To ensure his results were repeatable he carried out the experiment three times from each height and obtained the following results.

Drop height h / m ± 5%	Diameter, d / cm				(Mean diameter)^2 d^2 / cm^2	Uncertainty in (mean diameter)^2 / cm^2	Impact velocity $v = \sqrt{2gh}$ / m s^{-1}	Uncertainty in impact velocity / m s^{-1}
	Reading 1	Reading 2	Reading 3	Mean				
0.100	2.9	2.7	2.7	2.8	7.7	0.6	1.40	± 0.01
0.200	3.2	3.2	3.4	3.3	10.7	0.7	1.98	± 0.01
0.300	3.5	3.7	3.6	3.6	13.0	0.7	2.43	± 0.01
0.400	3.9	4.1	3.8	3.9	15.2	0.8	2.80	± 0.01
0.500	4.2	4.2	4.0	4.1	17.1	0.8	3.13	± 0.01
0.600	4.4	4.3	4.1	4.3	18.5	0.9	3.43	± 0.01

(a) Complete the four columns in the table above. Space has been left for any calculations if needed. [6]

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