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An optimal basketball free throw.

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Summary: A basketball player attempting a free throw has two parameters under his or her control: the angle of elevation and the force with which the ball is thrown. We compute upper and lower bounds for the initial velocity for suitable values of the angle of elevation, generating a subset of the configuration space of all successful free throws. A computer-assisted search of this configuration space yields a free throw shot most forgiving of error hence optimal.

Classification: N65 M95 R25 U75

Keywords: optimization problems; basketball free throws; trajectory plane; configuration plane; modeling; lower bounds; upper bounds; digression

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