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An object falling from rest through a height h reaches a velocity $v = \sqrt{2gh}$, where g is the gravitational acceleration. If a rock falls from a cliff 125 ft above the ground, what is its velocity when it hits the ground?

Solution.

$$v = \sqrt{2gh} = \sqrt{2\left(32.2 \frac{\text{ft}}{\text{s}^2}\right)(125 \text{ ft})}$$
$$= 89.7 \text{ ft/s}$$