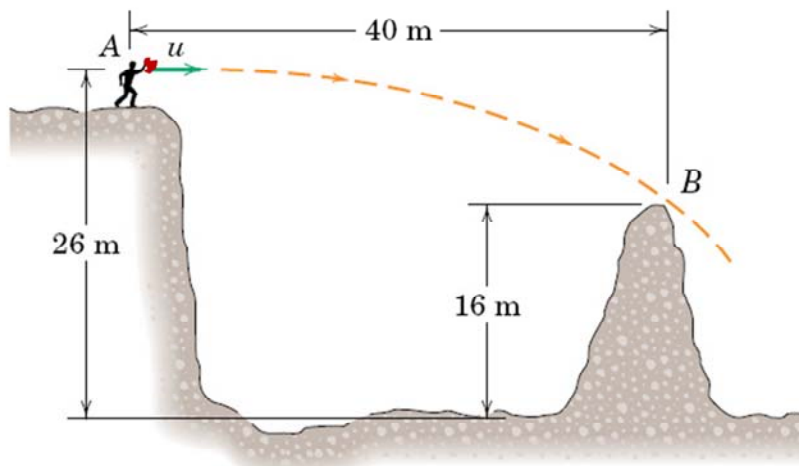


### Projectile Motion: Exercise



What is the minimum horizontal **velocity** ( $u$ ) a boy can throw a rock at A and have it clear the obstruction at B?

ME 231: Dynamics

$$a_y = -g \text{ so } y = 0 - \frac{1}{2}gt^2, \quad t = \sqrt{\frac{2y}{g}} = \sqrt{\frac{2(26-16)}{9.81}}$$
$$= 1.428 \text{ s}$$
$$x = ut; \quad u = 40/1.428$$
$$= \underline{28.0 \text{ m/s}}$$

A hand-drawn diagram showing the projectile's path. The vertical axis is labeled  $y$  and the horizontal axis is labeled  $x$ . The rock starts at a height of 26 m on the left and ends at a height of 16 m on the right, with a horizontal distance of 40 m. The initial velocity  $u$  is shown as a horizontal arrow pointing right from the starting point.