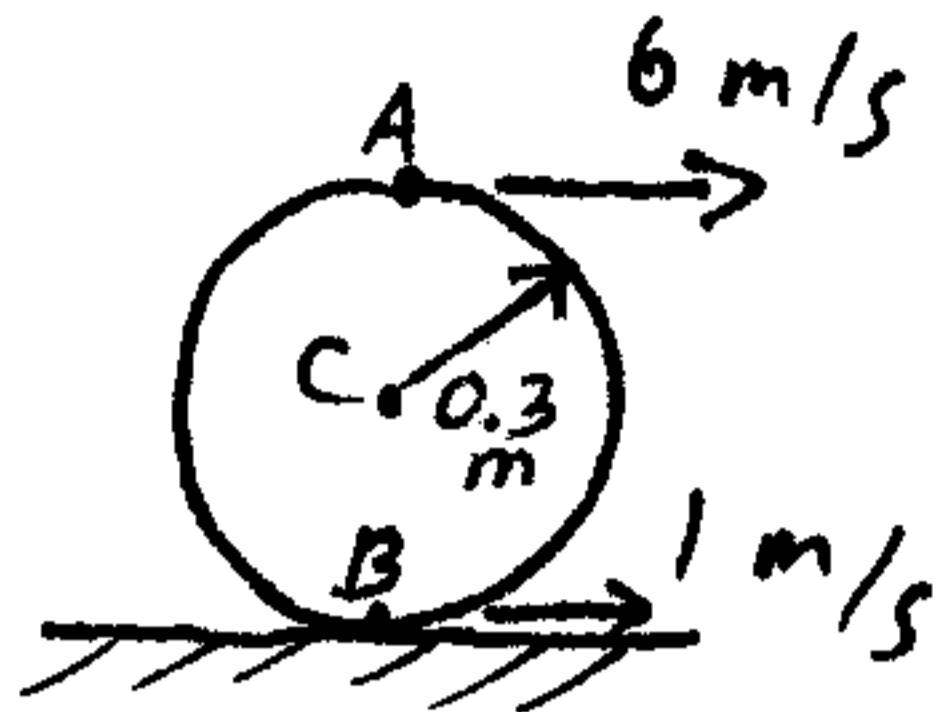


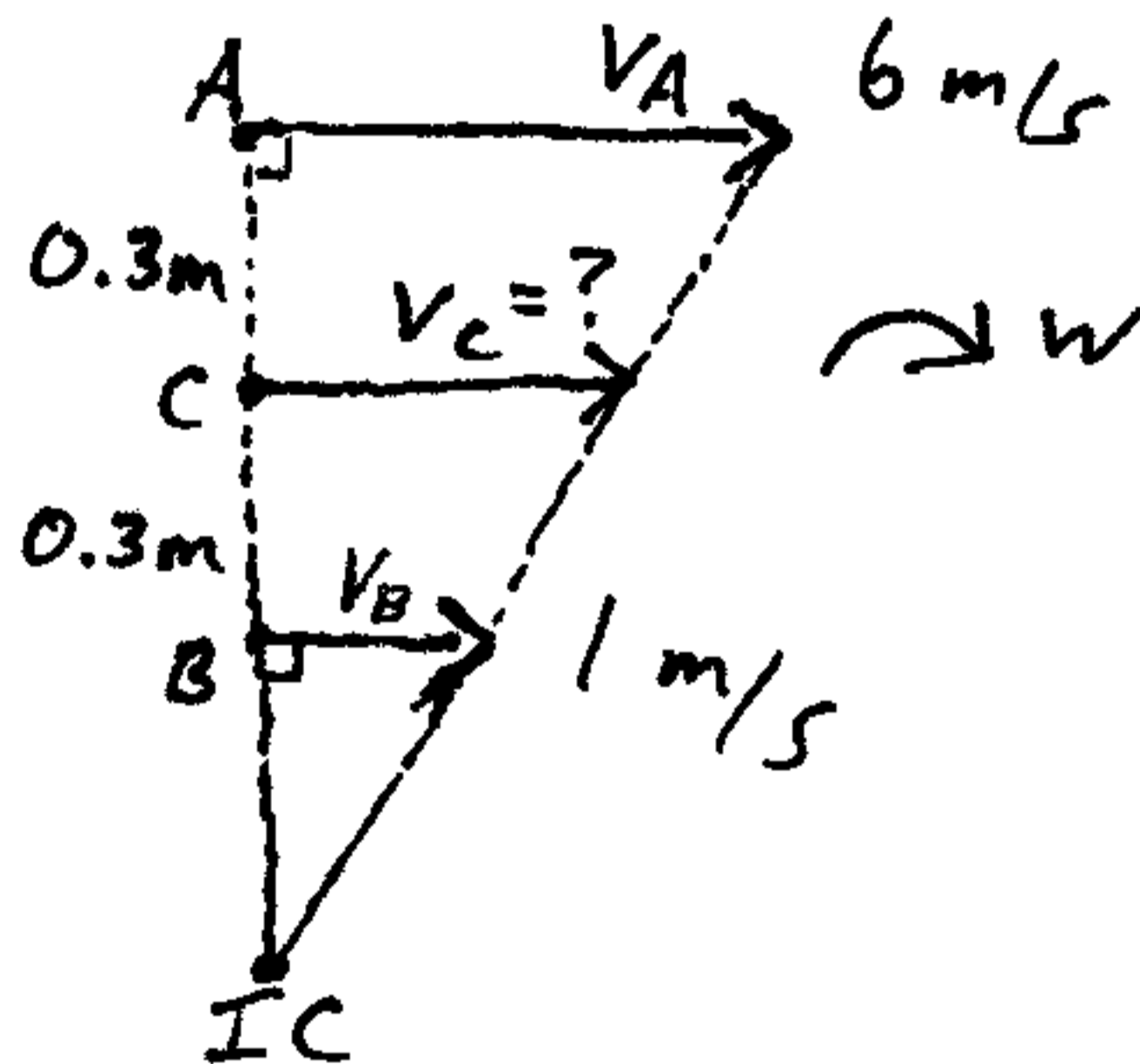
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This is a problem involving instant center (engineering mechanics).



A wheel rolls with slipping on a surface, and as a result, the top and bottom of the wheel have a velocity of  $6 \text{ m/s}$  and  $1 \text{ m/s}$ , respectively. Determine the velocity of the center  $C$  of the wheel.

Solution:



By similar triangles,

$$\frac{V_A - V_c}{0.3 \text{ m}} = \frac{V_A - V_B}{0.6 \text{ m}}$$

Substitute known values and solve for  $V_c$ :

$$\frac{6 \text{ m/s} - V_c}{0.3 \text{ m}} = \frac{6 \text{ m/s} - 1 \text{ m/s}}{0.6 \text{ m}}$$

Solve:  
 $V_c = 3.5 \text{ m/s}$  (ans.)