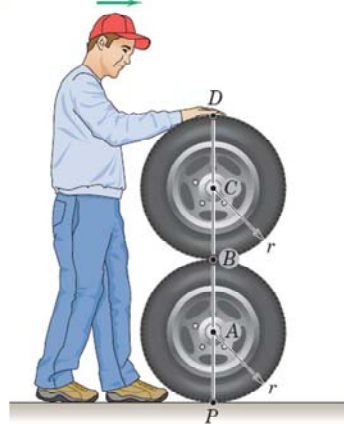


### Relative Velocity: Exercise

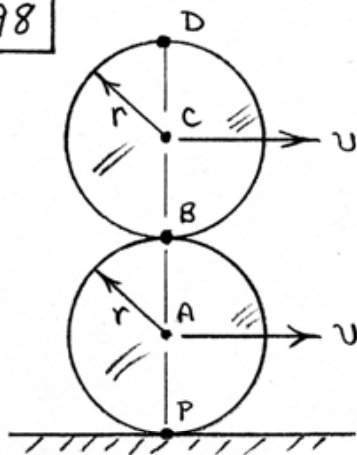
A mechanic "walks" a two-tire unit that rolls without slipping at constant **speed**  $v$ . The radius of both tires is  $r$ .

Determine the **velocities** of points **A**, **B**, **C**, and **D**.



ME 231: Dynamics

5/98



$$(a) \omega_l = \frac{v}{r} \text{ CW}$$

$$(b) \omega_u = \frac{v}{r} \text{ CCW}$$

$$(c) v_A = v \text{ (right)}$$

$$v_B = 2v \text{ (right)}$$

$$v_C = v \text{ (right)}$$

$$v_D = v_P = 0$$

The mechanic's hands have no absolute velocity!