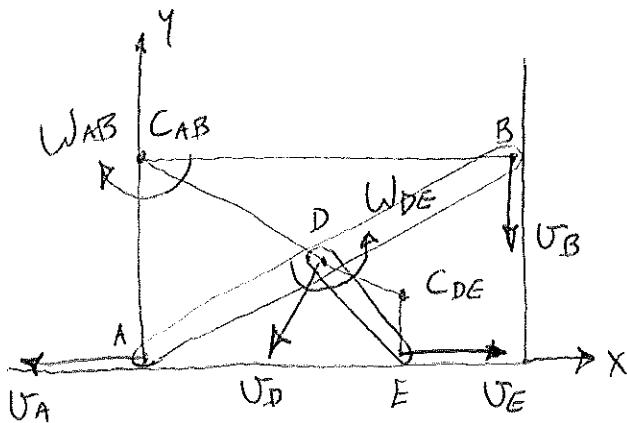


PROB. 15-98



$$v_B = 60 \frac{\text{IN}}{\text{s}} \downarrow$$

a) FIND  $\omega_{AB}$ ,  $\omega_{DE}$

$$v_B = r_{CB} \omega_{AB}$$

$$\omega_{AB} = \frac{(60 \frac{\text{IN}}{\text{s}})}{(30 \text{ IN})} = 2 \frac{\text{RAD}}{\text{s}}$$

$$C_{AB} (0, 16) \text{ IN}$$

$$v_D = r_{CD} \omega_{AB}$$

$$r_{CD} = \sqrt{15^2 + 8^2} = 17 \text{ IN}$$

$$v_D = (17 \text{ IN}) \left( 2 \frac{\text{RAD}}{\text{s}} \right) = 34 \frac{\text{IN}}{\text{s}}$$

$$v_D = r_{DE} \omega_{DE} \Rightarrow \omega_{DE} = \frac{v_D}{r_{DE}}$$

FIND  $C_{DE}$ :  $X_{CDE} = 21 \text{ IN}$ ,  $D(15, 8) \text{ IN}$

$$y = mx + b, m = \frac{y_D - y_C}{x_D - x_C} = \frac{(8) - (16)}{(15) - (0)} = -0.5333$$

$$y = -0.5333x + 16, \text{ AT } X_{CDE} = 21 \text{ IN},$$

$$y_{CDE} = -0.5333(21) + 16 = 4.8 \text{ IN} \quad C_{DE} (21, 4.8) \text{ IN}$$

$$r_{CD} = \sqrt{(21-15)^2 + (8-4.8)^2} = 6.8 \text{ IN}$$

$$\omega_{DE} = \frac{(34 \frac{\text{IN}}{\text{s}})}{(6.8 \text{ IN})} = 5.0 \frac{\text{RAD}}{\text{s}}$$

$$b) v_E = r_{CE} \omega_{DE} = (4.8 \text{ IN}) \left( 5.0 \frac{\text{RAD}}{\text{s}} \right) = 24 \frac{\text{IN}}{\text{s}} \rightarrow$$