2/1 The force **F** has a magnitude of 500 N. Express **F** as a vector in terms of the unit vectors **i** and **j**. Identify the x and y scalar components of **F**.
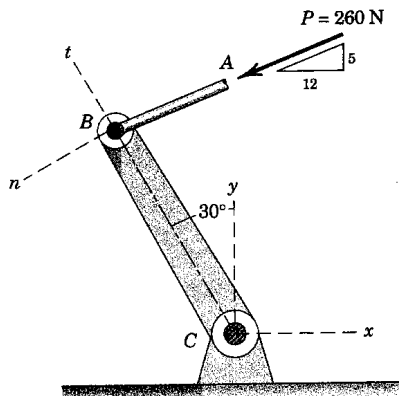
Ans. $\mathbf{F} = 383\mathbf{i} - 321\mathbf{j}$ N, $F_x = 383$ N, $F_y = -321$ N
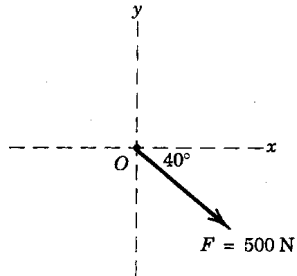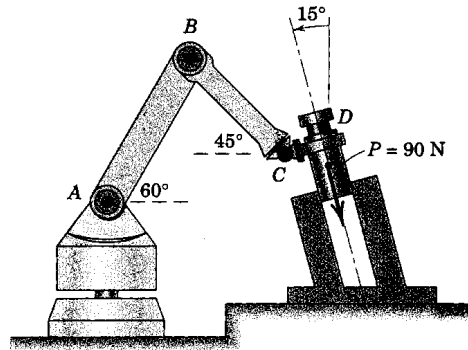

Problem 2/1

2/11 In the design of a control mechanism, it is determined that rod AB transmits a 260-N force **P** to the crank BC. Determine the x and y scalar components of **P**.

Ans. $P_x = -240$ N
$P_y = -100$ N

Problem 2/11

2/24 In the design of the robot to insert the small cylindrical part into a close-fitting circular hole, the robot arm must exert a 90-N force P on the part parallel to the axis of the hole as shown. Determine the components of the force which the part exerts *on* the robot along axes (a) parallel and perpendicular to the arm AB, and (b) parallel and perpendicular to the arm BC.

Problem 2/24