Answer the following questions:

1- Determine graphically the magnitude of the resultant force and its direction, measured counterclockwise from the positive x-axis.

$F_1 = 250$ lb

30°

45°

$F_2 = 375$ lb

$F_1 = 30$ N

$F_3 = 50$ N

20°

$F_2 = 20$ N
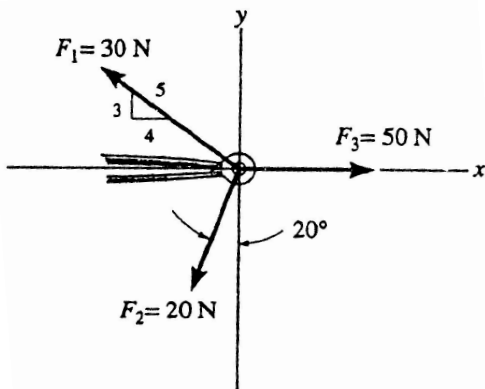
2- Determine the magnitude and direction of the resultant of these three forces.
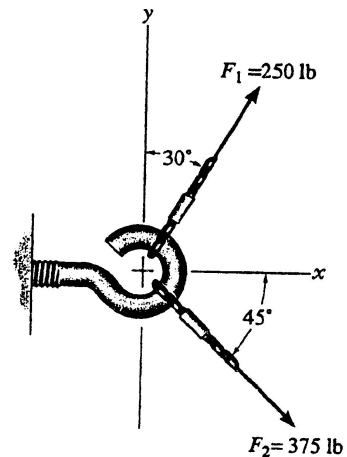
3- The motor at B winds up the cord attached to the 65N crate with a constant speed. Determine the force in cord CD supporting the pulley and angle Θ for equilibrium. Neglect the size of the pulley at C.

D

C

θ

13 12
5

A

B

3 kN

2.5 kN 1.5 kN 30°

5 3
4

A

B

2 m

4 m

2 m
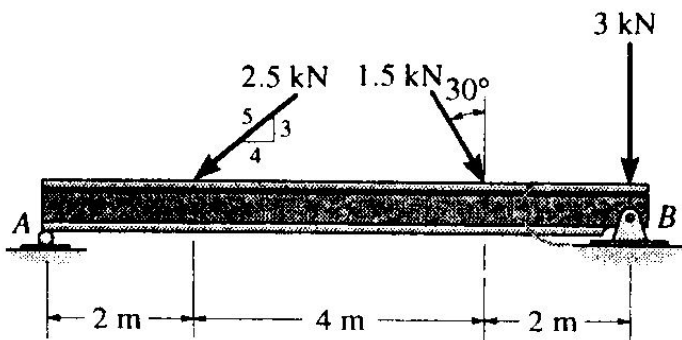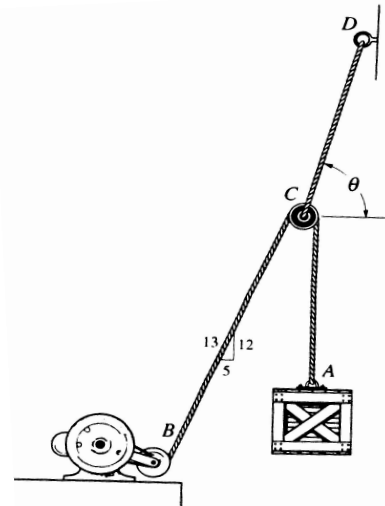
4- Replace the force system acting on the beam by an equivalent force and couple moment at point B.

Good Luck