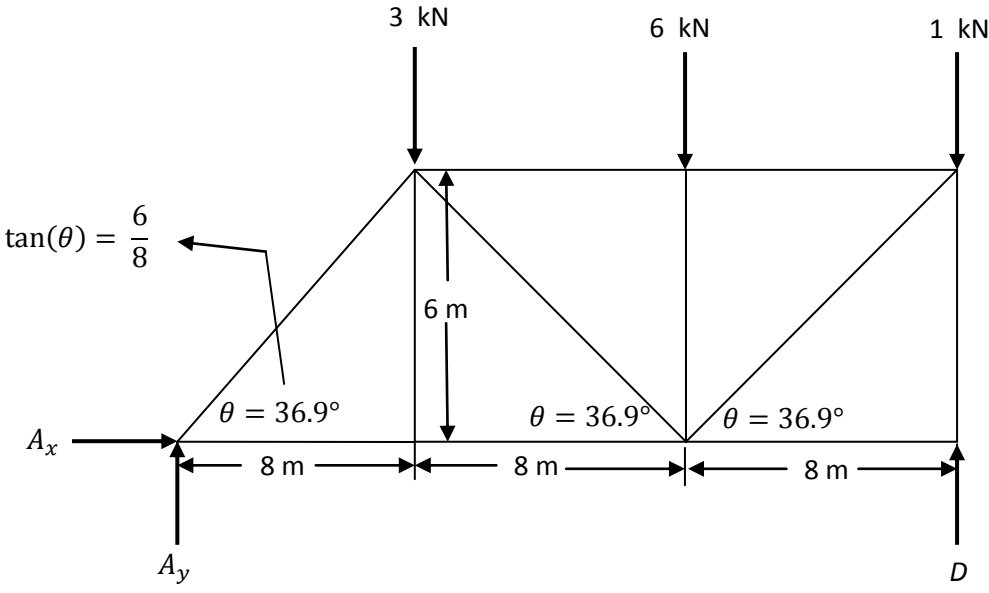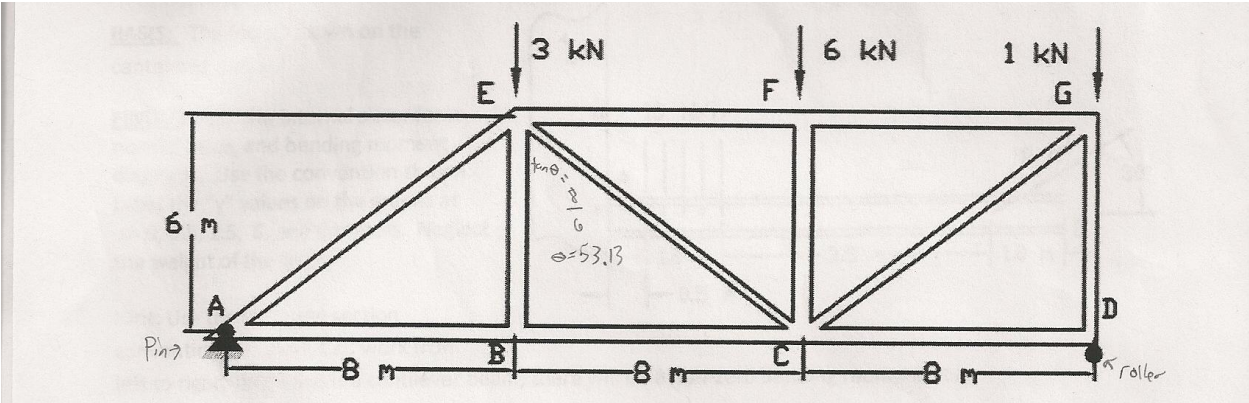Use the method of sections to determine the forces in members EF, EC, and BC. Determine which of these members are in tension and which are in compression.

$$\tan(\theta) = \frac{6}{8}$$

3 kN 6 kN 1 kN

$\theta = 36.9°$ $\theta = 36.9°$ $\theta = 36.9°$

A_x

6 m

8 m   8 m   8 m

A_y D

begin by analyzing the truss as a whole:

$$\sum M_A = 0$$

$$(D)(24) - (1)(24) - (6)(16) - (3)(8) = 0$$

$$D = 6 \; kN$$

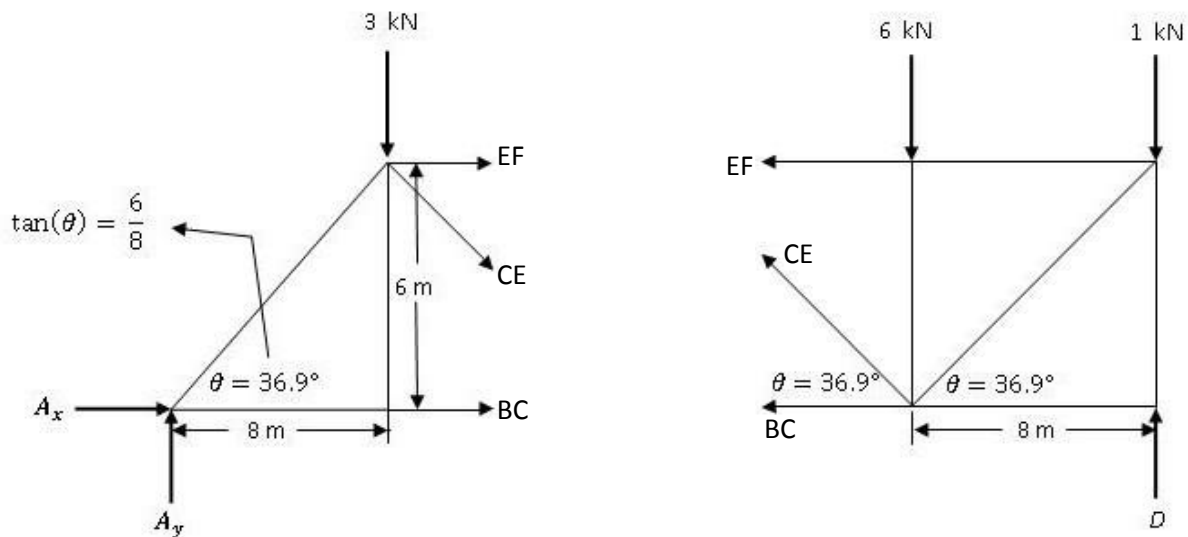$$\sum F_y = 0$$

$$D + A_y = 3 + 6 + 1$$

$$6 + A_y = 10$$

$$A_y = 4 \; kN$$

$$\sum F_x = 0$$

$$A_x = 0$$

Next cut the truss into two sections

Be sure to make the cut along the unknown members:

you can choose to analyze either side you think is easiest

in this example we will analyze the left side of the cut:

$$\sum F_y = 0$$

$$A_y - 3 - CE \sin(36.9) = 0$$

$$4 - 3 - CE \sin(36.9) = 0$$

$$CE = 1.6\ kN$$

$$\sum M_E = 0$$

$$(6)(BC) - (8)(A_y) = 0$$

$$(6)(BC) - (8)(4) = 0$$

$$BC = 5.3\ kN$$

$$\sum F_x = 0$$

$$EF + CE \cos(36.9) + BC = 0$$

$$EF + 1.6 \cos(36.9) + 5.3 = 0$$

$$EF = -6.57\ kN$$

members with a negative value are in compression and ones with a positive force in tension