Principles of Engineering

Name _____

Static Equilibrium Practice #1

Date _____ Period ____

M_A = _____

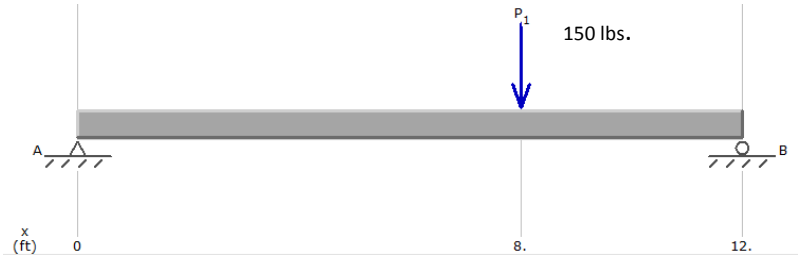
M_B = _____

M_{P1} = _____

R_{Ax} = _____

R_{Ay} = _____

R_{By} = _____



M_A = _____

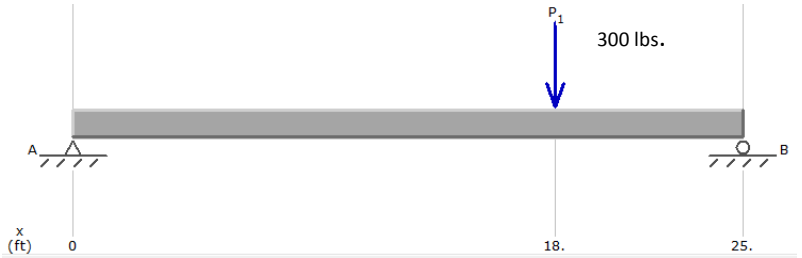
M_B = _____

M_{P1} = _____

R_{Ax} = _____

R_{Ay} = _____

R_{By} = _____



M_A = _____

M_B = _____

M_{P1} = _____

R_{Ax} = _____

R_{Ay} = _____

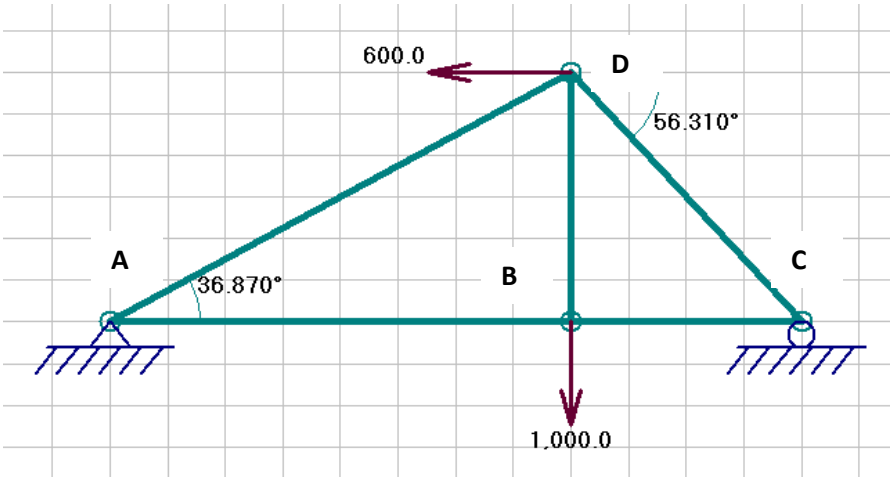
R_{By} = _____

Principles of Engineering

Name _____

Static Equilibrium Practice #2

Date _____ Period ____



M_A = _____

M_B = _____

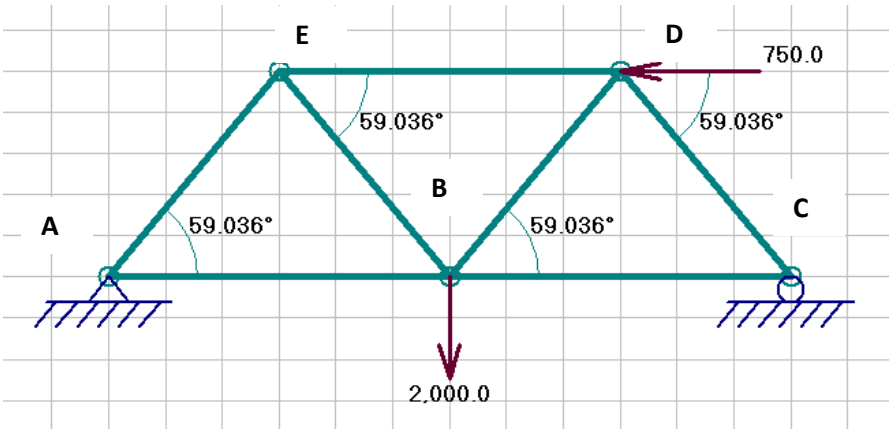
M_C = _____

M_D = _____

R_{Ax} = _____

R_{Ay} = _____

R_{Cy} = _____



M_A = _____

M_B = _____

M_C = _____

M_D = _____

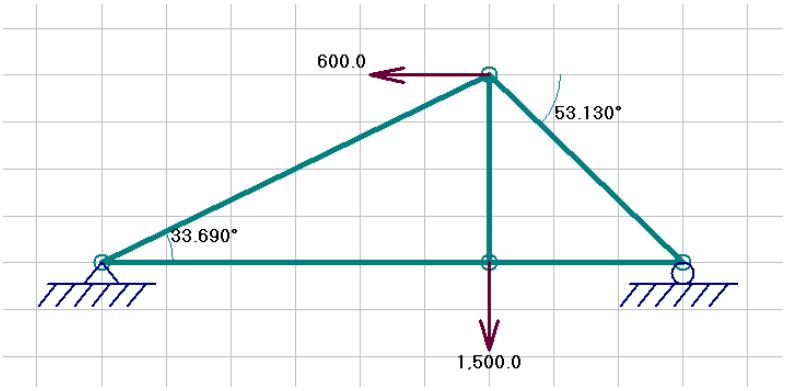
R_{Ax} = _____

R_{Ay} = _____

R_{Cy} = _____

Principles of Engineering Name _____

Statics – Static Equilibrium Practice #3 – Internal Truss Forces Date _____ Period ___



One grid line = 1 feet.

1. Draw a free body diagram for the above truss. Include the angles.
Label the points: A for the pin, B for the downward 1500 force, C for the roller, and D for the upper 600 force. Calculate the External Forces listed on the right.

R_{Ax} _____

R_{Ay} _____

R_{Cy} _____

M_B _____

M_C _____

M_D _____

2. Draw free body diagrams for each of the five joints, then calculate the internal truss forces.

Member A-B _____

Member B-C _____

Member C-D _____

Member A-D _____

Member B-D _____

Principles of Engineering

Name _____KEY_____

Static Equilibrium Practice #1

Date _____ Period ____

M_A = 0

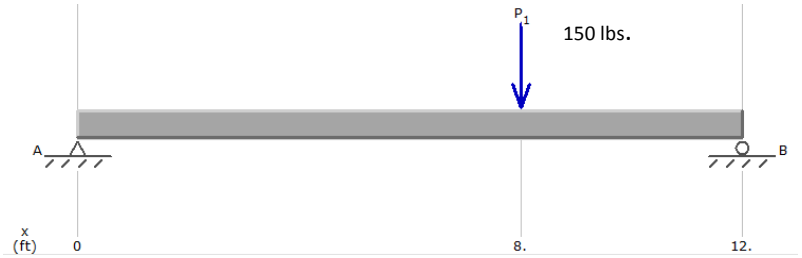
M_B = 3000 ft-lbs

M_{P1} = -3000 ft-lbs

R_{Ax} = 0

R_{Ay} = 50 lbs

R_{By} = 150 lbs



M_A = 0

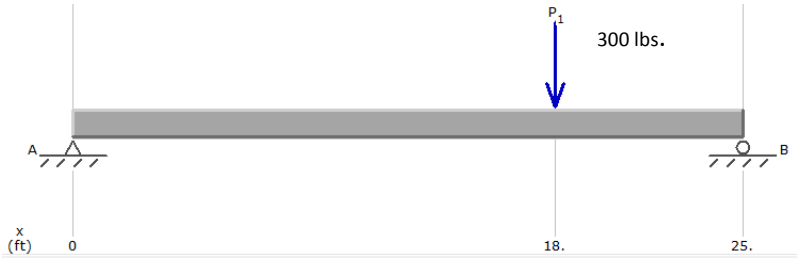
M_B = 1200 ft-lbs

M_{P1} = -1200 ft-lbs

R_{Ax} = 0

R_{Ay} = 50 lbs

R_{By} = 100 lbs



M_A = 0

M_B = 5400 ft-lbs

M_{P1} = -5400 ft-lbs

R_{Ax} = 0

R_{Ay} = 84 lbs

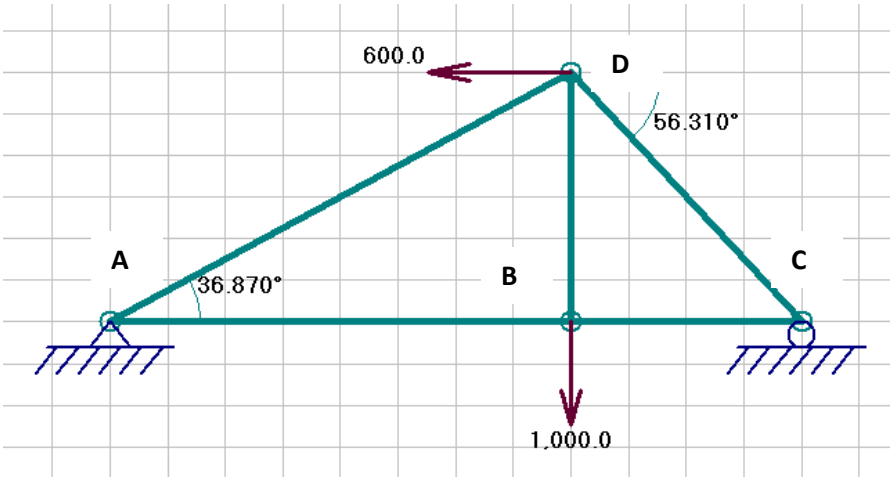
R_{By} = 216 lbs

Principles of Engineering

Name _____KEY_____

Static Equilibrium Practice #2

Date _____ Period ____



M_A = _____0

M_B = _____-8000 ft-lbs

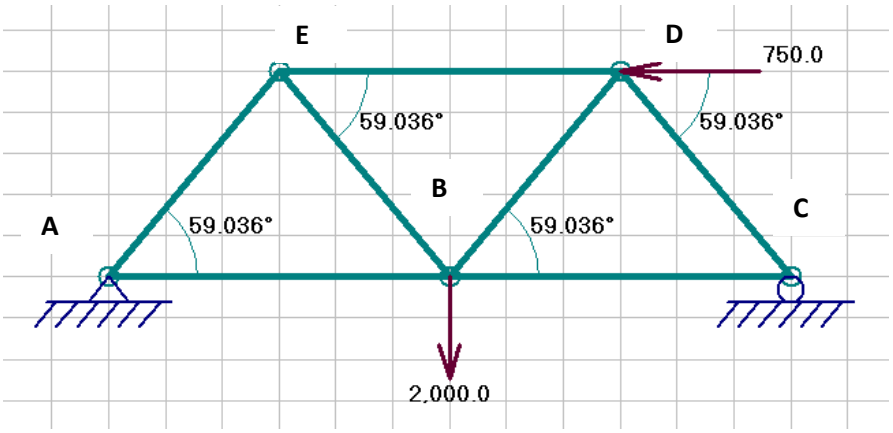
M_C = _____4400 ft-lbs

M_D = _____3600 ft-lbs

R_{Ax} = _____600 lbs

R_{Ay} = _____633.3 lbs

R_{Cy} = _____366.7 lbs



M_A = 0

M_B = -12000 ft-lbs

M_C = 8250 ft-lbs

M_D = 3750 ft-lbs

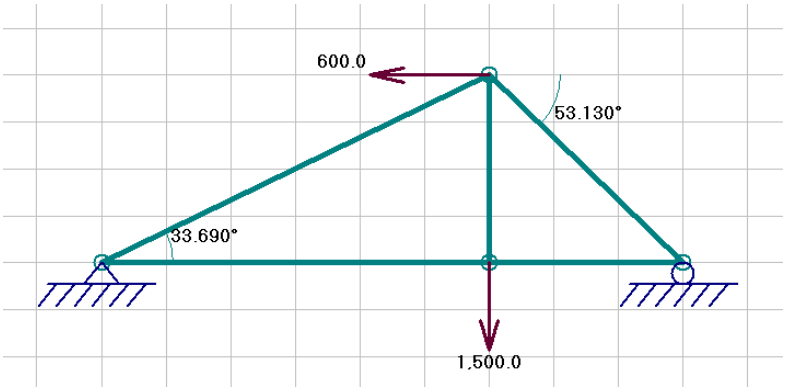
R_{Ax} = 750 lbs

R_{Ay} = 1312.5 lbs

R_{Cy} = 687.5 lbs

Principles of Engineering Name _____

Statics – Static Equilibrium Practice #3 – Internal Truss Forces Date _____ Period ___



One grid line = 1 feet.

1. Draw a free body diagram for the above truss. Include the angles.
Label the points: A for the pin, B for the downward 1500 force, C for the roller, and D for the upper 600 force. Calculate the External Forces listed on the right.

Free Body Diagrams will vary.

R_{Ax}	600 lbs
R_{Ay}	766.7 lbs
R_{Cy}	733.3 lbs
M_B	-9000 ft-lbs
M_C	6600 ft-lbs
M_D	2400 ft-lbs

2. Draw free body diagrams for each of the five joints, then calculate the internal truss forces.

Free Body Diagrams will vary.

Member A-B	550 lbs
Member B-C	550 lbs
Member C-D	-917 lbs
Member A-D	-1382 lbs
Member B-D	1500 lbs