STRUCTURES HOMEWORK #2: GRAPHIC STATICS

ISSUED: Class #7
DUE: 3 Days after Class #9

READING: Schodek, <u>Structures</u>, Chapter 4, pp. 132-183, 4th Ed., 2001.

Construct a force polygon for each set of tensile forces below and determine the magnitude and direction of the <u>tension</u> force required to provide equilibrium at point O in each case. Add the equilibrating force (to scale) in each of the original drawings.
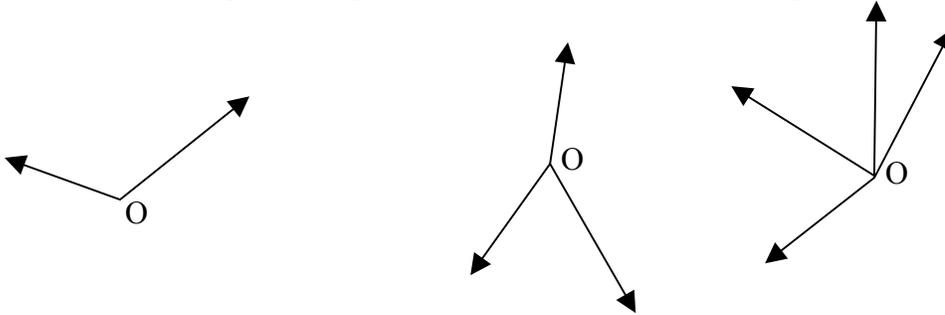
Now redraw each set of forces so that they act in compression rather than tension and construct a force polygon for equilibrium in compression. What is the difference between the force polygon for tension versus compression forces? Is more than one polygon possible?

Now complete the attached design exercises using graphic statics.

3) A cable must support the five point loads weighing 50 kips each. Determine the shape of the cable.

50^k 50^k 50^k 50^k 50^k

A   B   C   D   E   F

O, O'

A

B

C

D

E

F

A

B

C

D

E

F