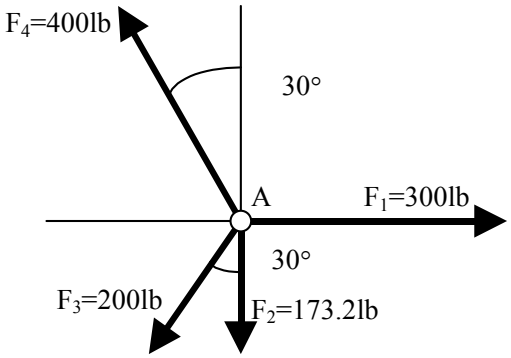
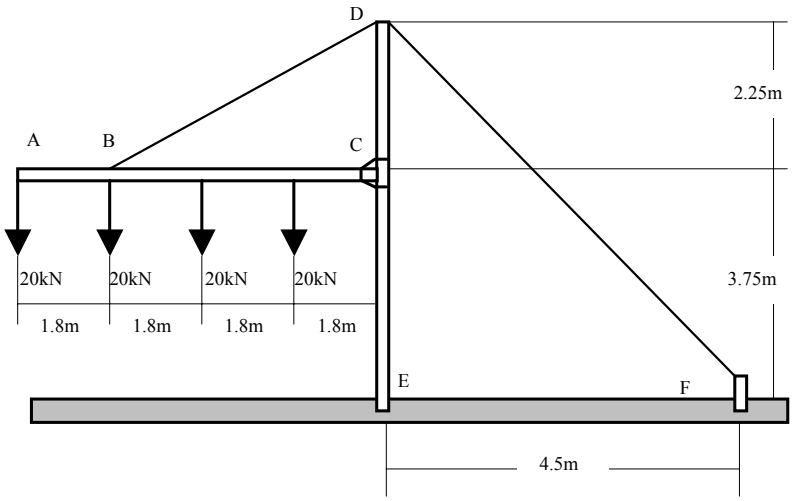
Prerequisites Test
(Please write your answers on these sheets)

Name: _____

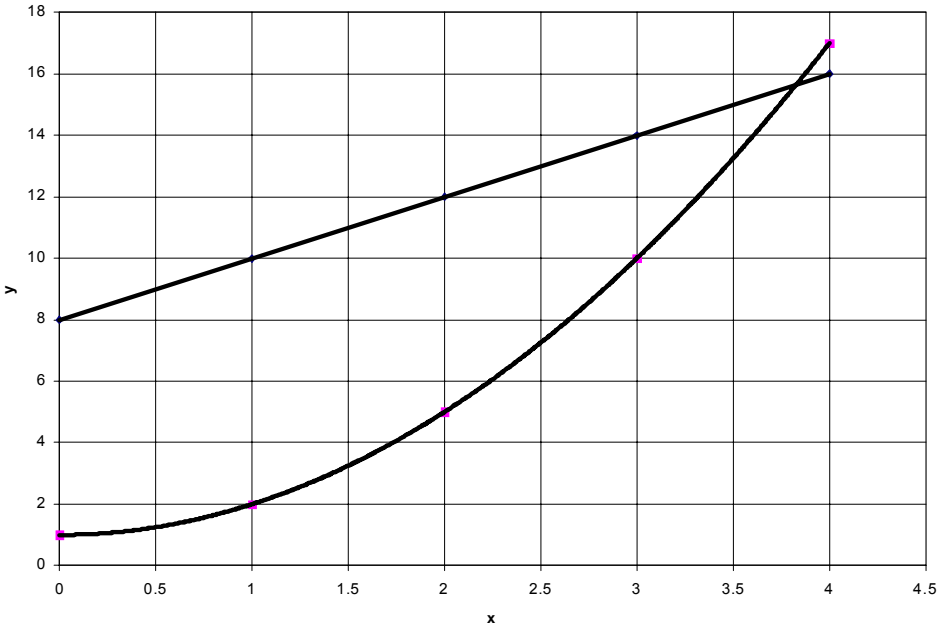
1. Show if the particle at point A is at equilibrium or not.



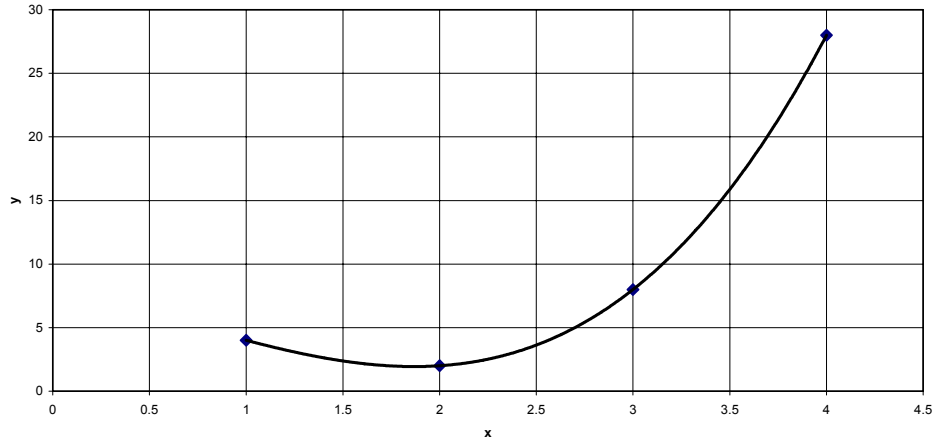
2. Draw the free body diagram for the frame and cables shown when the supports at E and F are removed. Also draw the free body diagram for the beam AC in the structure. **(Note: you need not calculate the magnitudes of the unknown forces; only indicate how and where the external forces and moments act.)**



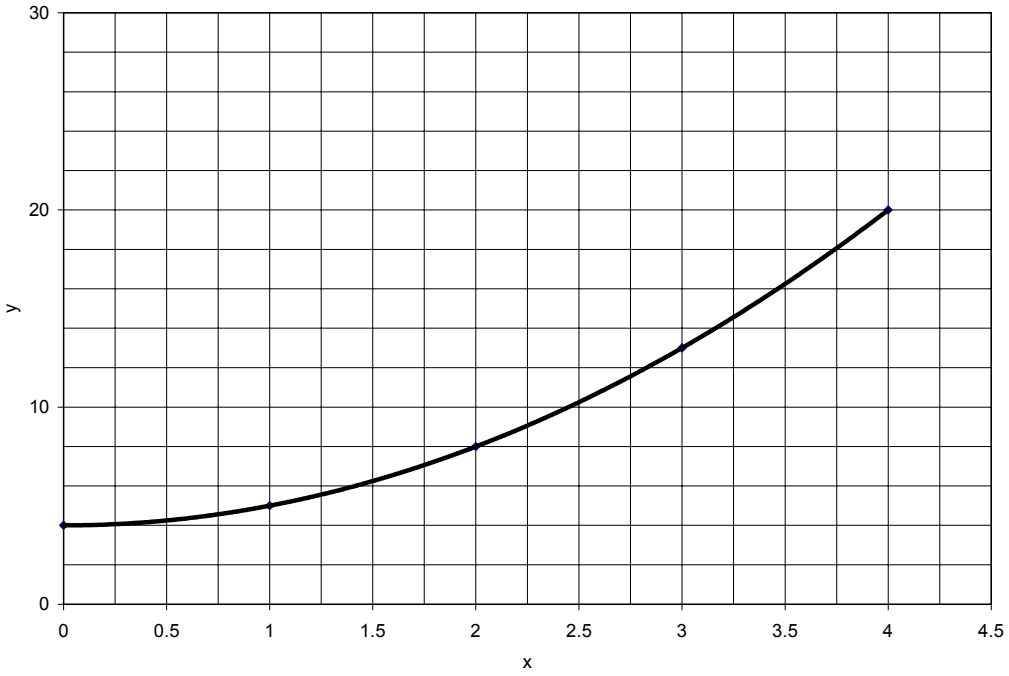
3. Determine y as a function of x for the line and the curve shown below. Hint: the curve is a second-degree polynomial.



4. Determine the slope at $x = 3$ of the curve $y = 8 - 3x - 2x^2 + x^3$ shown below.



5. Determine the area under the curve between $x = 1$ and $x = 4$ for the curve $y = x^2 + 4$ shown below



6. Mark the approximate location of the centroid of the following shapes.

