Problem 1: (8 Marks)
Determine the magnitude of the resultant force $F_R = F_1 + F_2 + F_3$ and its direction, measured counterclockwise from the positive $x$ axis.

![Diagram of forces](image1)

Problem 2: (8 Marks)
If the spring on rope $OB$ has been stretched a distance 0.2m and fixed in place as shown, determine the tension developed in each of the other three ropes in order to hold the 9 kN weight in equilibrium. Rope $OD$ lies in the $x$-$y$ plane.

![Diagram of ropes and spring](image2)
Problem 3: (9 Marks)

For the following problem, determine the moment (magnitude and vector forms) of the force $F$ about:

1) The origin point $a$ and
2) The $aa'$ axis.

Good Luck.