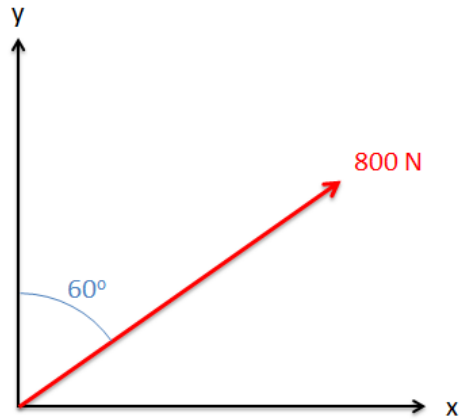Problem A1.1
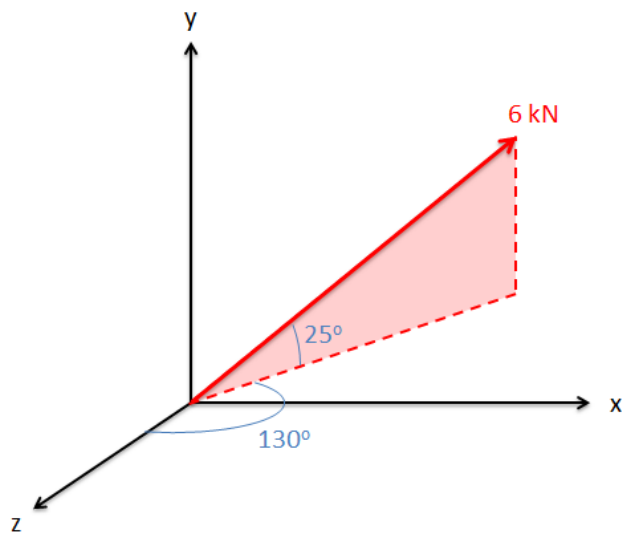
Determine the x and y components of the force vector shown below.

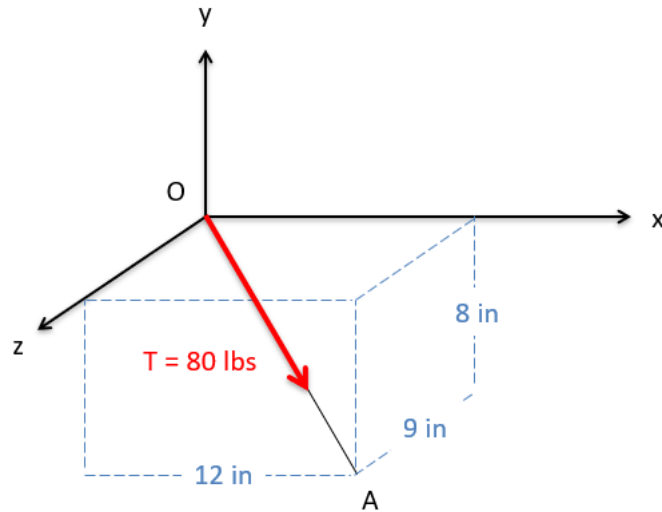Solution: F_x=692.8 N, F_y=400N

Problem A1.2

Determine the x, y, and z components of the vector shown below.

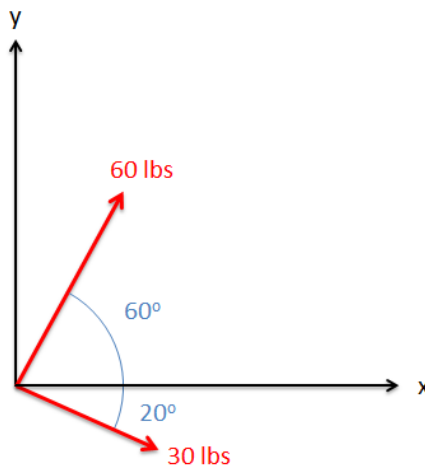Solution: F_x=4.17 kN, F_y=2.54 kN, F_z=-3.50 kN

Problem A1.3

An 80 lb tension acts along a cable stretching from point O to point A. Based on the dimensions given, break the tension force shown into x, y, and z components.

Solution: F_x = 56.47 lbs, F_y = -37.64 lbs, F_z = 42.35 lbs

Problem A1.4

Determine the x and y components of the sum of the two vectors shown below.

Solution: F_{total} = [58.2, 41.7] lbs

Problem A1.5

There are two forces acting on a barge as shown below (F_1 and F_2). The magnitude and direction of F_1 is known, but the magnitude and direction of F_2 is not. If the sum of the two forces is 600 N along the x-axis, what must the magnitude and direction of F_2 be?
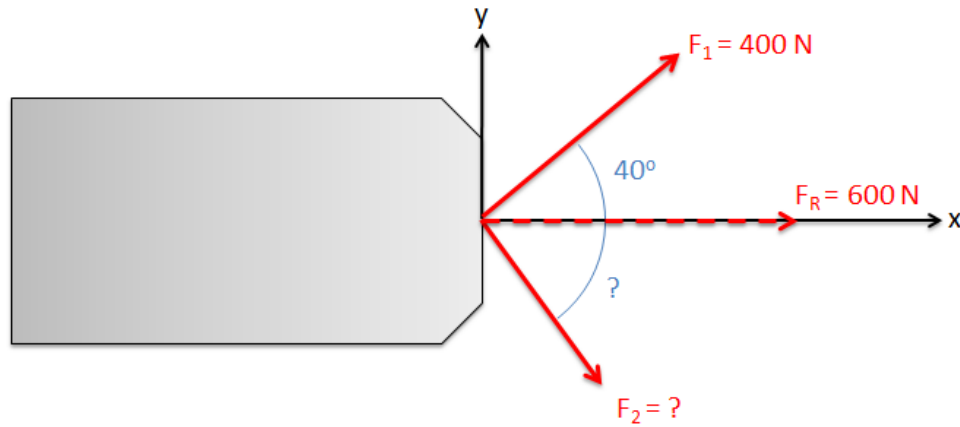
Solution: F_2=390.3 N at 41.2° below the x axis