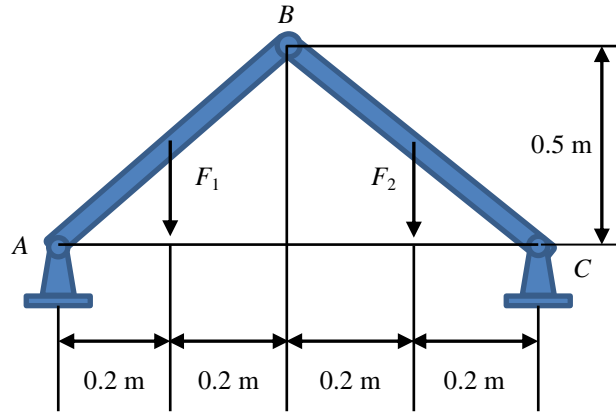3. The two loads are normally and independently distributed as $F_1 \sim N(600, 3^2)$ N and $F_2 \sim N(800, 5^2)$ N. Determine the distributions of the horizontal and vertical forces at pins A and C.

Answer: $A_x \sim N(280, 1.17)$ N

$A_y \sim N(650, 3.33)$ N

$B_x \sim N(280, 1.17)$ N

$B_y \sim N(750, 5.21)$ N