Question 1:

The car below has a mass of 1500 lbs with the center of mass 4 ft behind the front wheels of the car. What are the normal forces on the front and the back wheels of the car?

\[
\begin{align*}
\sum F_x &= 0 = 0 \\
\sum F_y &= F_F + F_B - 1500 = 0 \\
\sum M_G &= -(4)(F_F) + (3)(F_B) = 0
\end{align*}
\]

\[
F_F = \frac{3}{4} F_B
\]

\[
\frac{3}{4} F_B + F_B - 1500 = 0
\]

\[
1.75 F_B = 1500
\]

\[
F_B = 857.14 \text{ lbs}
\]

\[
F_F = \frac{3}{4} F_B
\]

\[
F_F = 642.86 \text{ lbs}
\]