RBE 595 — FAIR-AV
Week 7 Homework

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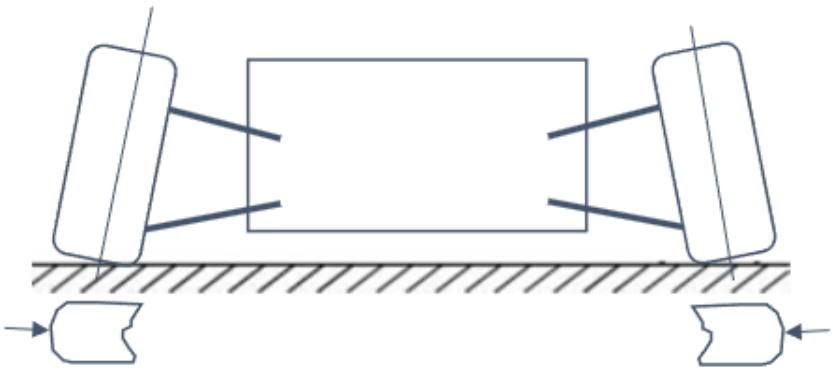
Problem 1

Using the following axle system with negative camber angle to answer why static negative camber is desired.



Solution

The axle system in the figure features a negative camber angle, where the top of the wheel is tilted inward toward the center of the vehicle. This setup is intended to improve handling, particularly during cornering. As the vehicle enters a turn, the body rolls outward due to lateral forces, shifting the weight toward the outside wheels. The negative camber helps keep the tire more perpendicular to the road surface during this body roll, thereby maximizing the contact patch. By optimizing the tire's contact with the road, negative camber enhances grip and stability under lateral forces, as indicated by the force arrows. This is why static negative camber is commonly used for better handling performance.