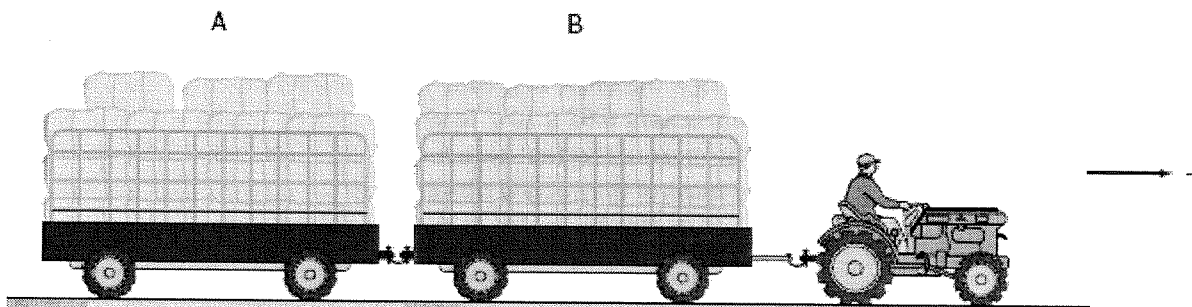


NEWTON'S THIRD LAW QUESTIONS

1. A tractor pulls two 2000 kg hay wagons, A and B, connected together as shown below. If the tractor applies a constant force of 5000 N, determine the acceleration of the two hay wagons, and the force at the point where the two wagons are joined together. Assume no friction.



2. A tugboat pulls three barges connected end to end with wire cables. The barge closest to the tugboat has a mass of 6000 kg. The next-closest barge has a mass of 5000 kg, and the last barge has a mass of 4000 kg.
- Calculate the force that the tugboat must apply to accelerate the three barges at a rate of 1.5 m/s^2 .
 - Determine the tension in the cable joining each pair of barges.



3. A dog team driven by an Inuit hunter pulls two toboggans. The dog team can apply a maximum force of 700 N. Each toboggan experiences a constant frictional force of 100 N.
- Determine the acceleration of the two toboggans, if each has a mass of 300 kg.
 - What is the force in the rope joining the two toboggans together?

