



Practice #1: The most massive train was put together in South Africa in 1989 and traveled 861 km. This freight train was 7 km in length and had a mass of  $6.94 \times 10^7$  kg. Suppose the train's acceleration from rest to an average speed of 38 km/hr was  $0.191 \text{ m/s}^2$ . What would then be the size of the unbalanced force that the locomotives exerted on the cars of the train?

Practice #2: Back in 1932, a freight train slows down as it approaches the Milwaukee Station in Great Falls, Montana. If a force of  $-3.8 \times 10^6$  N is required to provide an acceleration of  $-0.33 \text{ m/s}^2$ , what is the train's mass?

Practice #3: The force of gravity between the moon and an object near its surface is much smaller than the force of gravity between the Earth and the same object near the Earth's surface. A bowling ball with a mass of 7.51 kg is pulled downward by the moon with an unbalanced force of  $-12.2$  N. What is the acceleration of the falling bowling ball on the moon?