

57. We convert to SI units: $v = 94(1000/3600) = 26$ m/s. Eq. 6-18 yields

$$F = \frac{mv^2}{R} = \frac{(85)(26)^2}{220} = 263 \text{ N}$$

for the horizontal force exerted on the passenger by the seat. But the seat also exerts an upward force equal to $mg = 833$ N. The magnitude of force is therefore $\sqrt{263^2 + 833^2} = 874$ N.