

## Exercise 9-6

FBD for skier:



↑ +y (direction of  $\vec{a}_c$ ,  
toward centre of  
circle)

$$\sum F_y = m a_y = m a_c \quad , \text{ where } m = \frac{510 \text{ N}}{9.80 \text{ m/s}^2} = 52.0 \text{ kg}$$

$$\therefore N - m g = m \frac{v^2}{r} \quad (52.04 \text{ kg})$$

$$\therefore N = m \left( g + \frac{v^2}{r} \right)$$

$$= 52.04 \left( 9.80 + \frac{(15.0)^2}{28.5} \right)$$

$$= 921 \text{ N}$$