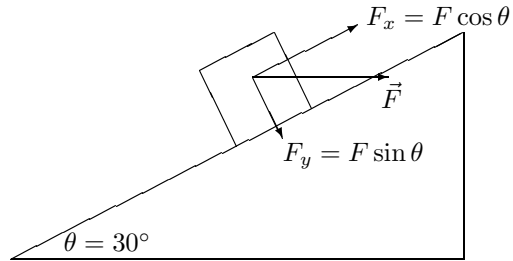


52. The coordinate system we wish to use is shown in Fig. 5-18(c) in the textbook, so we resolve this horizontal force into appropriate components.



- (a) Referring to Fig. 5-18 in the textbook, we see that Newton's second law applied to the  $x$  axis produces

$$F \cos \theta - mg \sin \theta = ma .$$

For  $a = 0$ , this yields  $F = 566$  N.

- (b) Applying Newton's second law to the  $y$  axis (where there is no acceleration), we have

$$N - F \sin \theta - mg \cos \theta = 0$$

which yields the normal force  $N = 1.13 \times 10^3$  N.