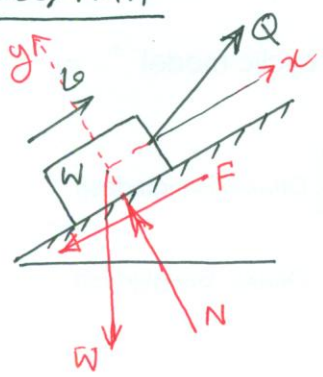
#1386/P.417



$Q = 46$ lb $\beta = 0$ $\theta = 15^\circ$

$f = 0.3$ $U_{net} = -200$ ft-lb

$S = 12$ ft (to right)

$W = ?$

Soln $\Sigma F_y = 0$, +ve y as +ve

$\Rightarrow Q \sin\beta + N - W = 0$

$\Rightarrow 46 \sin 0^\circ + N - W = 0$

$\therefore N = W$

$F = N \cdot f = W \times 0.3 = 0.3W$

Resultant force $= Q\cos\beta - F - W\sin\theta$

$= 46\cos 0^\circ - 0.3W - W\sin 15^\circ$

$= 46 - 0.56W$, in the +ve x direct^n

$\therefore (46 - 0.56W) \times 12 = -200$

$\Rightarrow 46 - 0.56W = -\frac{200}{12}$

$\therefore W = \boxed{111.9 \text{ lb}}$ Ans.