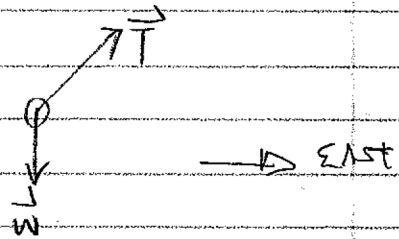


4.29

(a)



(b)

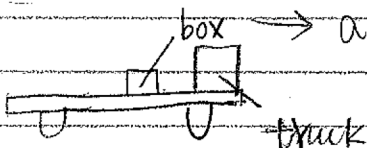


In case (a), the acceleration of ball and train are 0.
 since $|\Sigma \vec{F}| = ma$. $a=0$ $|\Sigma \vec{F}|=0$.
 the net force on the ball is zero.

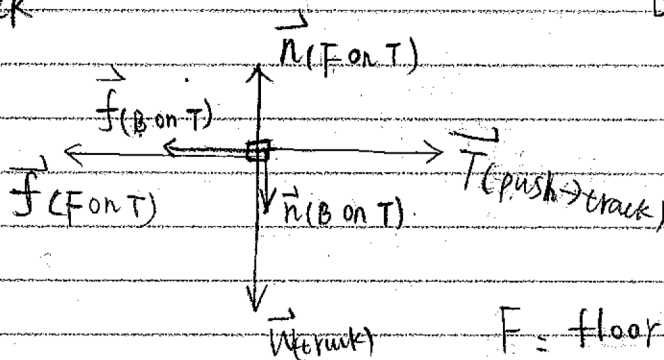
In case (b), train speeding up, the acceleration of ball and train ARE NOT ZERO.

$|\Sigma \vec{F}| = ma \neq 0$ $|\Sigma \vec{F}| \neq 0$
 the net force on the ball IS NOT ZERO.

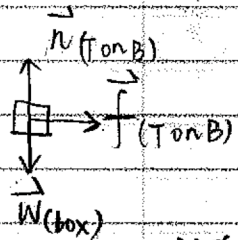
4.30



Truck



Box



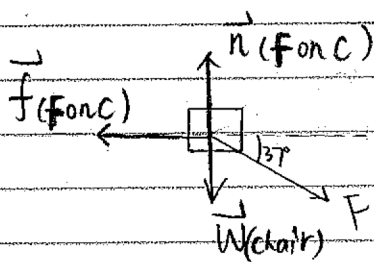
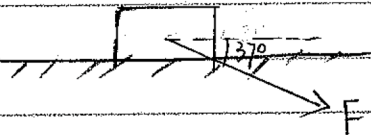
F: floor
 T: truck
 B: box

PAIRS

$$\vec{f}(T \text{ on } B) = -\vec{f}(B \text{ on } T)$$

$$\vec{n}(T \text{ on } B) = -\vec{n}(B \text{ on } T)$$

4.31



$$|\vec{F}| \cdot \sin 37^\circ + |\vec{W}| = |\vec{n}|$$

$$|\vec{n}| = |\vec{W}| + |\vec{F}| \sin 37^\circ$$

$$= 1210 \times 9.8 + 400 \times 0.6 \text{ N}$$

$$= 1411.6 \text{ N}$$