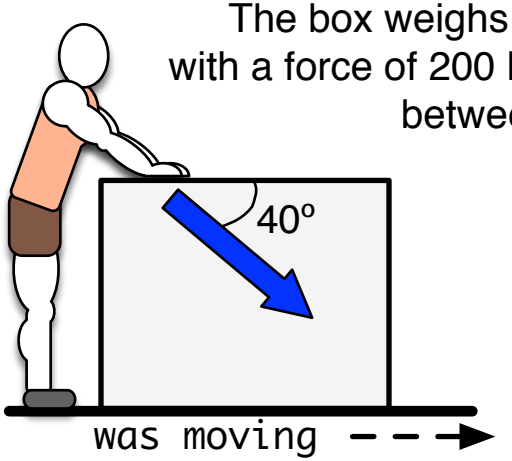
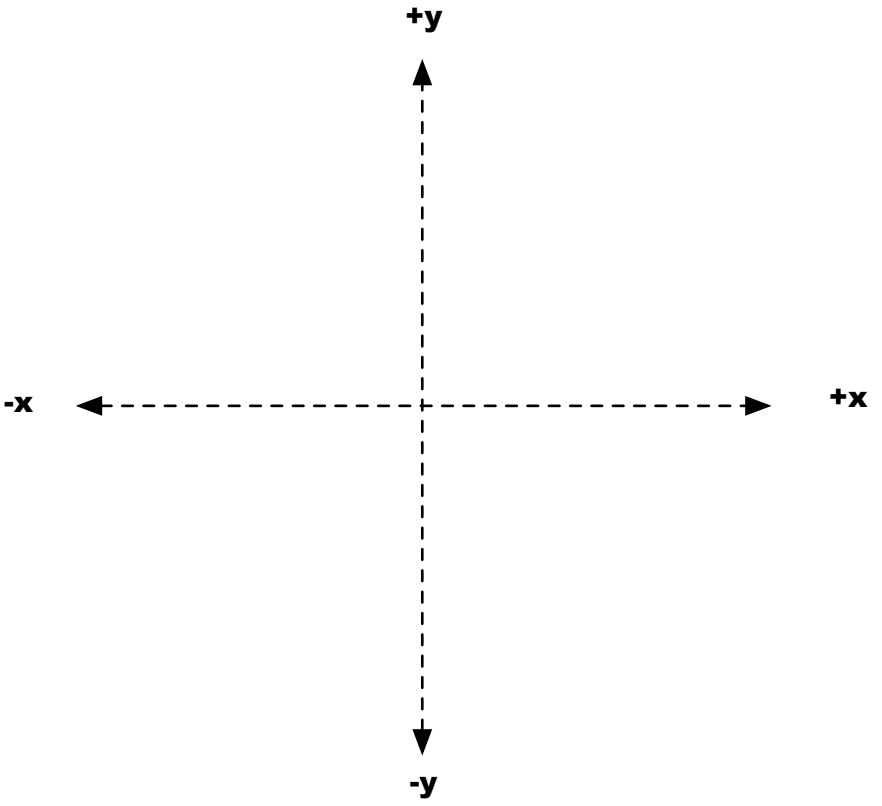
The box weighs 300 N. The person pushes with a force of 200 N. The coefficient of friction between the box and floor is 0.50.





a) Draw and label all forces on the diagram, including components.
b) Find the Normal Force.
c) Find the Force of Friction.
d) Find the net Force in the x-direction.

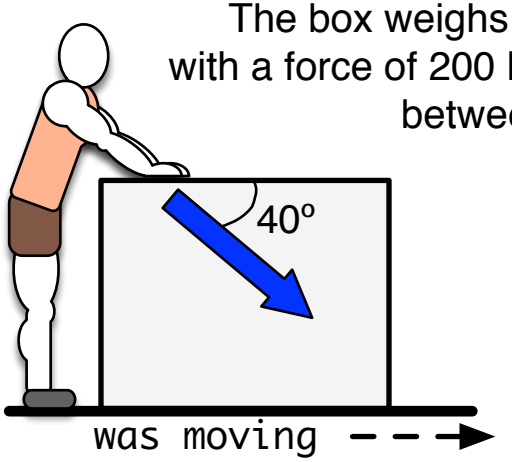
Fnet in the x

☐ gaining speed.
☐ constant speed.
☐ losing speed.

Fnet in the y

☐ gaining speed.
☐ constant speed.
☐ losing speed.

The box weighs 300 N. The person pushes with a force of 200 N. The coefficient of friction between the box and floor is 0.50.



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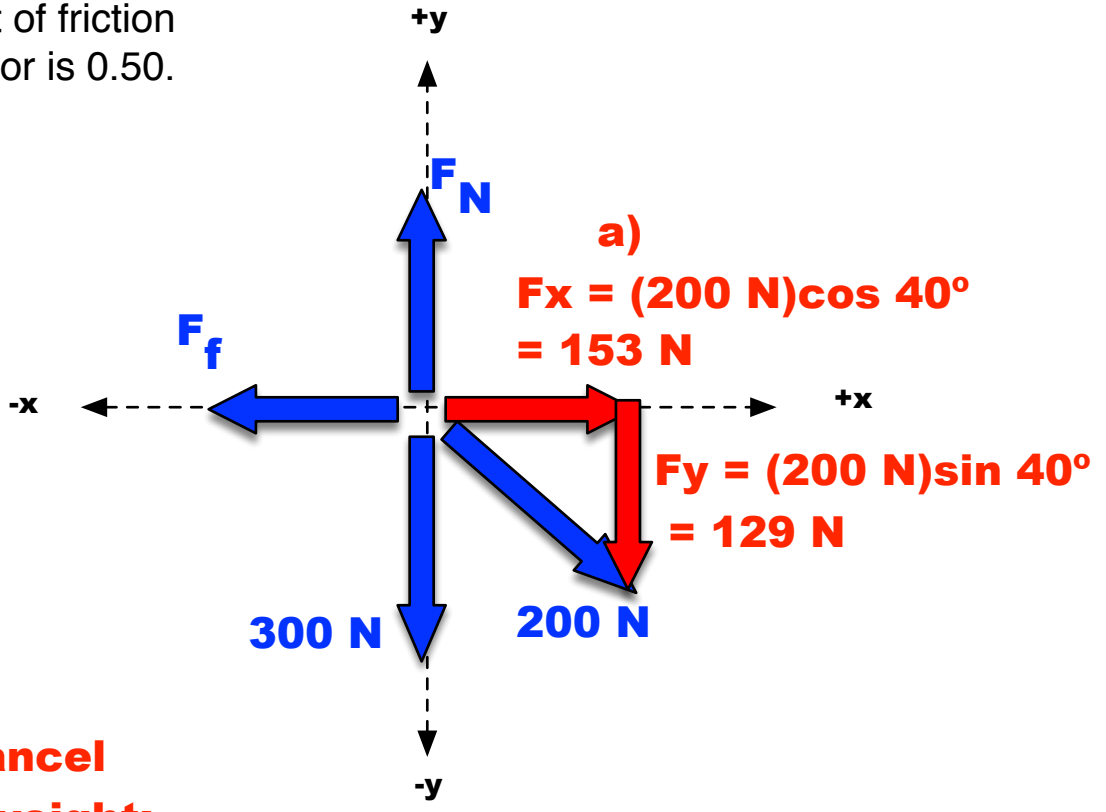


a)
$F_x = (200\ N)\cos 40^o = 153\ N$

$F_y = (200\ N)\sin 40^o = 129\ N$

b) Since the Normal force has to cancel out both the y-component and the weight:

$F_N = 300\ N + 129\ N = 429\ N$

c) $F_f = (CoF)(F_N) = (0.50)(429\ N) = 215\ N$

d) $F_{net} = Fx - F_f = 153\ N - 215\ N = -62\ N$

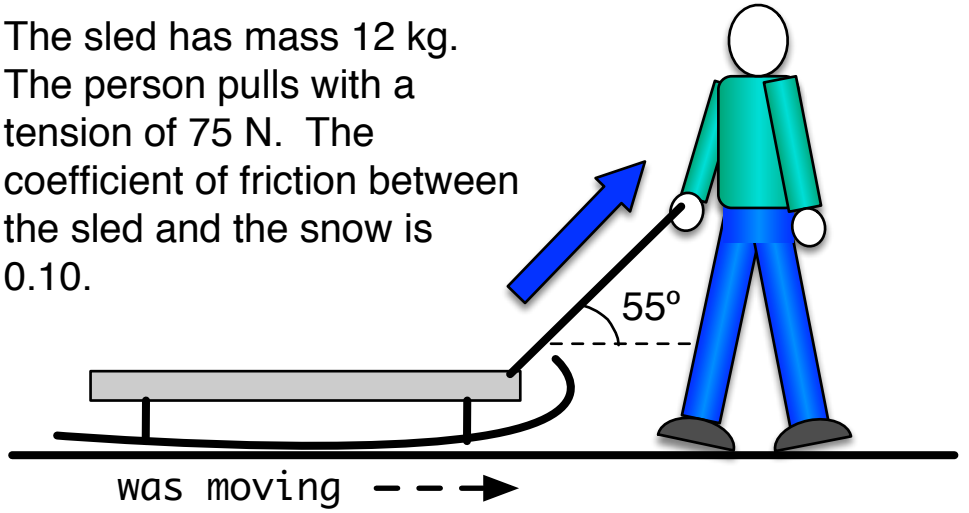
Fnet in the x
-62 N

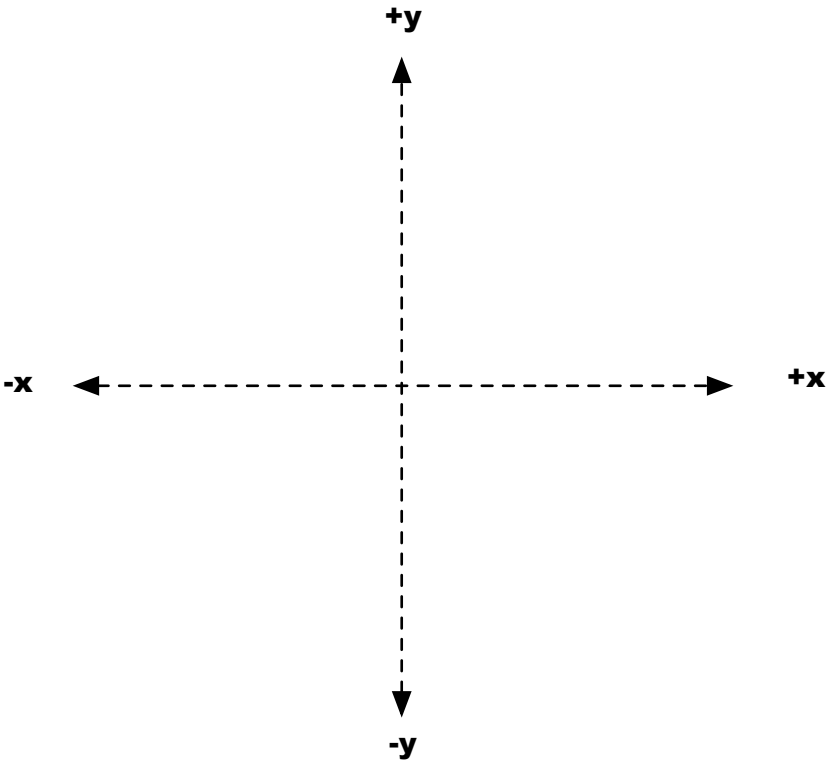
☐ gaining speed.
☐ constant speed.
☒ losing speed.

Fnet in the y
0

☐ gaining speed.
☒ constant speed.
☐ losing speed.

The sled has mass 12 kg. The person pulls with a tension of 75 N. The coefficient of friction between the sled and the snow is 0.10.





a) Draw and label all forces on the diagram, including components.
b) Find the Normal Force.
c) Find the Force of Friction.
d) Find the net Force in the x-direction.

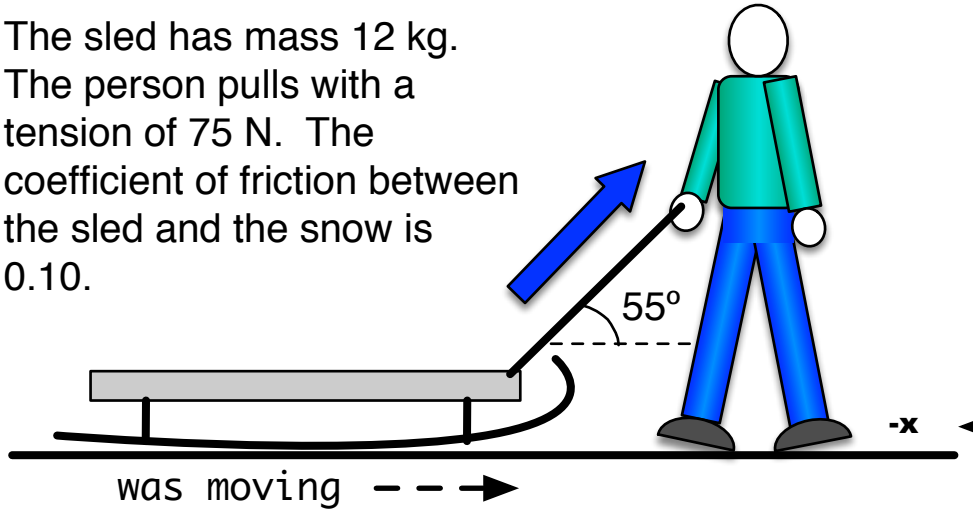
Fnet in the x

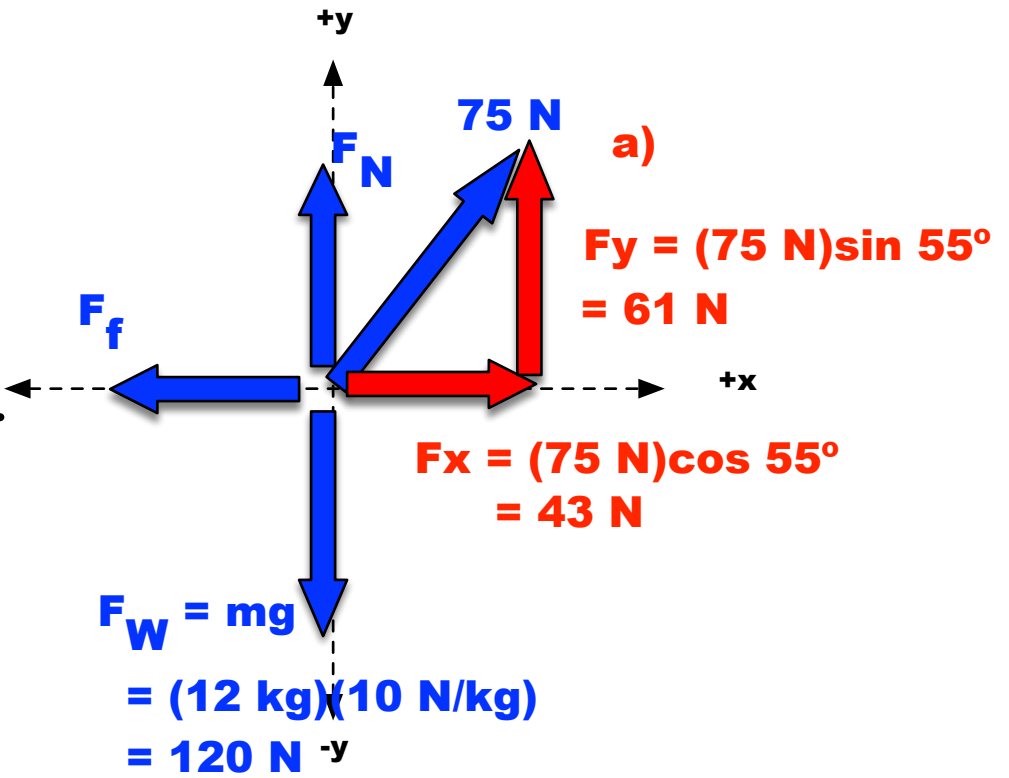
☐ gaining speed.
☐ constant speed.
☐ losing speed.

Fnet in the y

☐ gaining speed.
☐ constant speed.
☐ losing speed.

The sled has mass 12 kg. The person pulls with a tension of 75 N. The coefficient of friction between the sled and the snow is 0.10.





a) Draw and label all forces on the diagram, including components.
b) Find the Normal Force.
c) Find the Force of Friction.
d) Find the net Force in the x-direction.

b) Since the Normal force and the y-component together cancel the weight:

F_N + 61 N = 120 N

F_N = 59 N

c) $F_f = (CoF)(F_N) = (0.10)(59\ N) = 6\ N$

Fnet in the x
+ 37 N

d) $F_{net} = Fx - F_f = 43\ N - 6\ N = 37\ N$

Fnet in the y
0

- [X] gaining speed.
- [ ] constant speed.
- [ ] losing speed.

- [ ] gaining speed.
- [X] constant speed.
- [ ] losing speed.