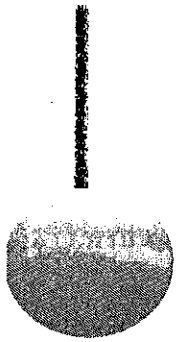
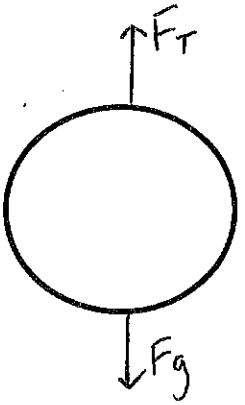
Force Diagrams 2

We use force diagrams to show all of the external forces acting on an object. The object is isolated from other objects. Let's look at another type of force.

1. A ball is hanging on a string. What are the forces working on the ball?
2. Draw what you think the force diagram would be.



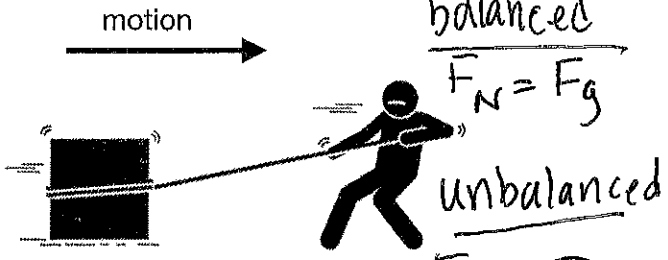


balanced

$F_g = F_T$

Force	Symbol	Description of force
Gravity	F_g	The force of gravity is pulling down on the object toward the center of the earth. Always a pull.
Tension	F_T	The pull force that is transmitted through a string, rope or similar object when it is pulled tight

2. Tension is a pull force. It can also work in a horizontal direction. Draw a force diagram for a box that is being pulled (and moved) by a person.

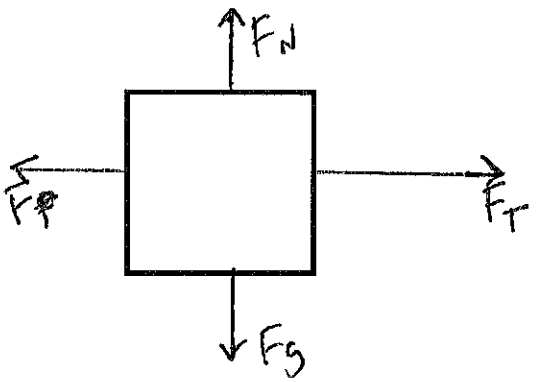


balanced

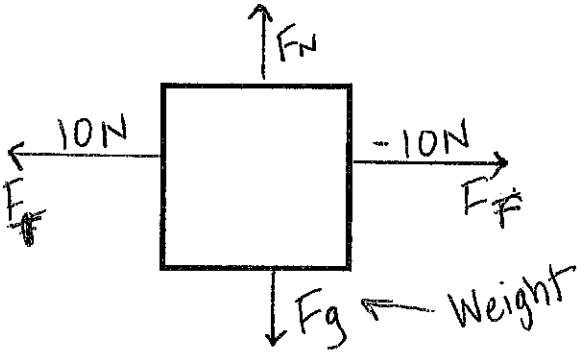
$F_N = F_g$

unbalanced

$F_T > F_f$



3. Draw a force diagram for a block that is being pulled to the left with 10 N of force but **not** moving.

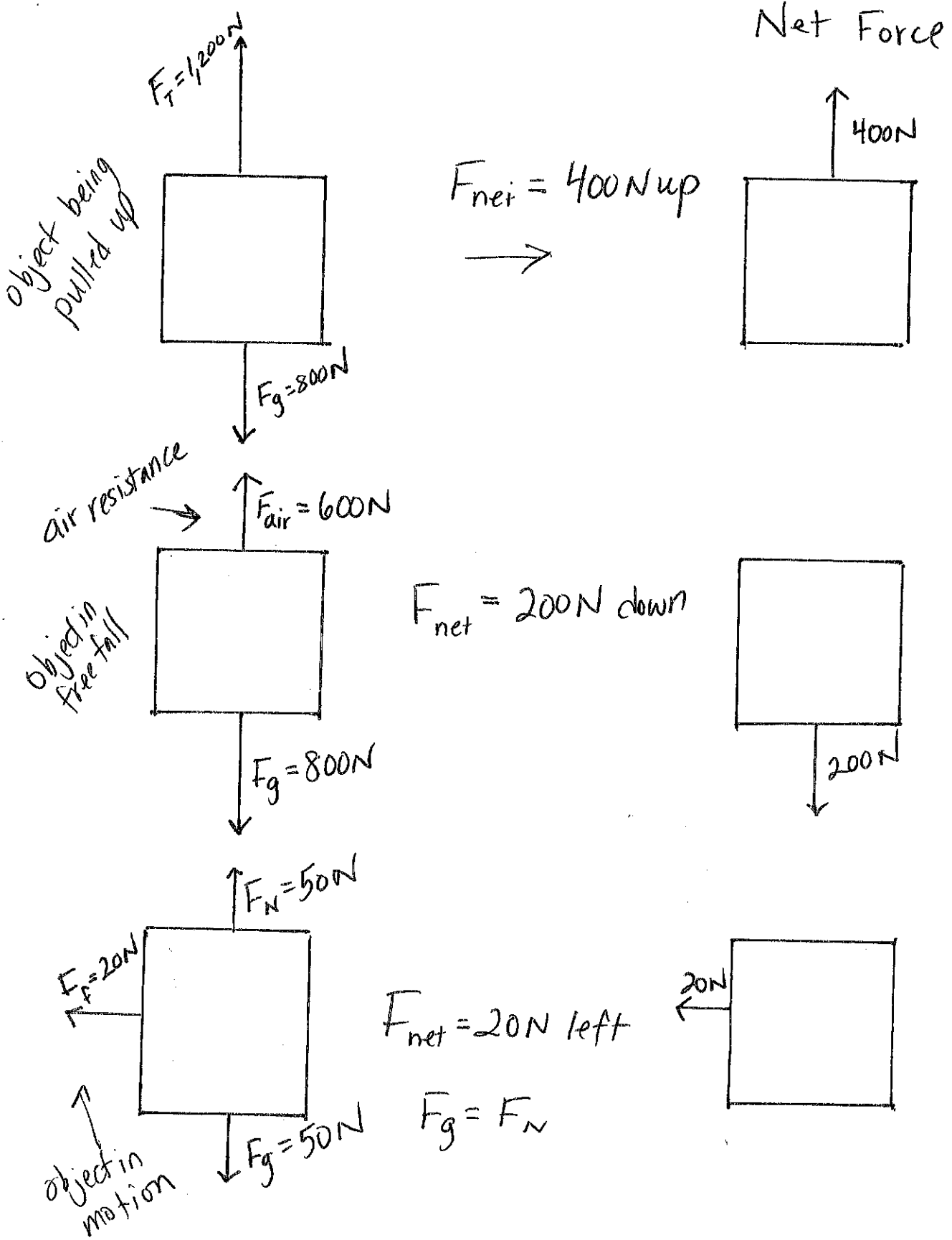


Balanced

$F_N = F_g$

$F_T = F_f = 10N$

Net Force


$F_T = 1200N$
object being pulled up
$F_g = 800N$
$F_{net} = 400N$ up
400N
air resistance
$F_{air} = 600N$
object in free fall
$F_g = 800N$
$F_{net} = 200N$ down
200N
$F_N = 50N$
$F_F = 20N$
$F_g = 50N$
object in motion
$F_{net} = 20N$ left
20N
$F_g = F_N$