

AP Physics Chapter 5 Conceptual Questions (1-15 odd)

Drag Force = Air Resistance

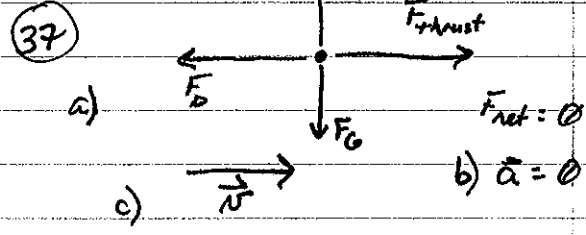
You should always label forces with a capital "F" & subscript

- ① 2 - Tension & Gravity
(F_T) (F_G)
- ③ 2 - Air Resistance, Gravity
(F_{Air}) (F_G)
(or 1 if ignoring air resistance)
- ⑤ Immediately after release
 F_{Air} - contact force
 F_G - Long Range Force
(or just F_G if ignoring F_{Air})
- ⑦ a. $20m/s^2$ (double)
b. $5m/s^2$ (half)
c. $10m/s^2$ (same)
- ⑨ No. At rest forces could still be acting but simply cancel one another
- ⑪ False. It always accelerates in the direction of the net force (could be moving in another direction)
- ⑬ Yes. Friction can be in same direction as velocity.
Example: Two books stacked on a table - push bottom book & static friction causes top book to accelerate as well

- ⑮ C. Newton's 1st Law - object's tend to move at constant velocity (constant speed & direction)

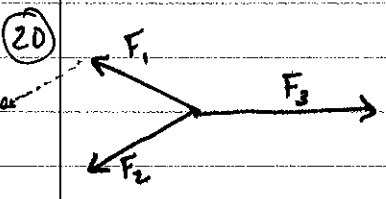
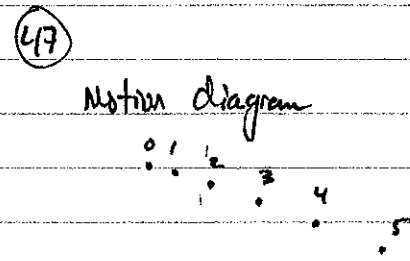
AP Physics Chapter 5 Exercises & Problems (9, 15, 20, 23, 31, 37, 47, 48, 49)

9) $F = ma$
 $m = \frac{F}{a}$
 $m_1 = \frac{3}{5}$
 $m_2 = \frac{5}{3}$
 $\frac{m_1}{m_2} = \frac{3/5}{5/3} = \frac{3}{5} \times \frac{3}{5} = \frac{9}{25}$

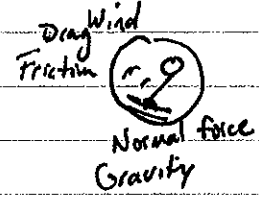
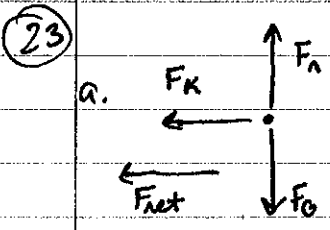


d) since normal force present - must be on ground
 this could be a fan cart moving at constant velocity (terminal)

15) $m = \frac{F}{a}$
 $m = \frac{1.0N}{4m/s^2}$
 $m \approx .25kg$

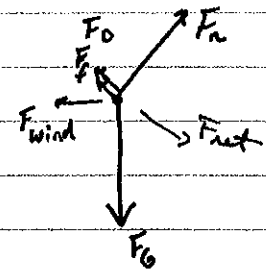


force-identification diagram

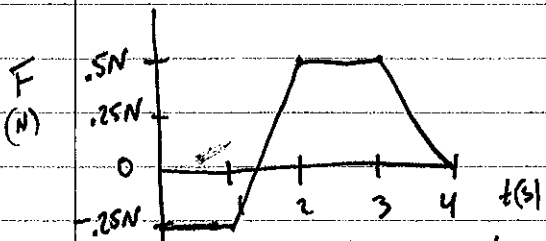


b. A book slides across a table & slows, due to friction.

free body diagram



31) $m = .500kg$

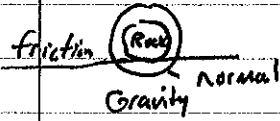


graph same shape as cart graph - look at axes though.

motion diagram

48

0 1 2 3 4 5
• • • • •



49

4
3
1
0

