Friction 2

1. Normal	A. When an object is moving you must include this in your sum of forces.
2. F_{static}	B. Perpendicular to a surface.
3. $F_{kinetic}$	C. You must overcome this to get an object moving.
4. ΣF	D. Found by adding all forces together; direction matters.
5. Inertia	E. Resistance to change; depends only on mass.

6. Which is usually greater, μ_s or μ_k?

7. What do you always need to calculate friction?

8. Give the three conditions of equilibrium:

9. If an object is at equilibrium does it have to be at rest?

10. A 20 kg object feels the following forces: 12 N left; 8 N right; 4 N left. What force will keep it at equilibrium?

11. Equilibrium or not? A car feels a force of air friction that is equal to the force of the engine?

12. Is the car accelerating?

Understanding Friction

$60\text{ N} \longleftarrow \boxed{\begin{array}{c}\textbf{10}\\\textbf{kg}\end{array}} \longrightarrow \begin{array}{c}\text{Fs} =\\40\text{ N}\end{array}$

$68\text{ N} \longleftarrow \boxed{\begin{array}{c}\textbf{8}\\\textbf{kg}\end{array}} \begin{array}{l}\rightarrow \text{Fs} = 40\text{ N}\\\rightarrow \text{Fk} = 20\text{ N}\end{array}$

$20\text{ N} \longleftarrow \boxed{\begin{array}{c}\textbf{6}\\\textbf{kg}\end{array}} \longrightarrow 12\text{ N}$

13. Does the 10 kg object move? Why or why not?
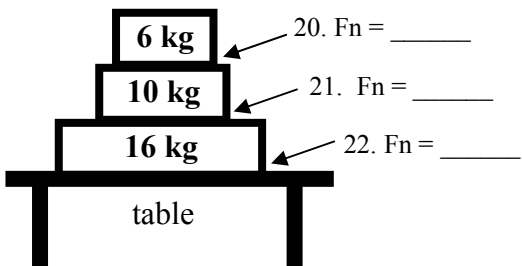
14. What is the weight of the 8 kg object?

15. How much force is necessary to move the 8 kg object?

16. Does the 8 kg object move?

17. If the 8 kg object moves, how much force will oppose it's motion?

18. If the 6 kg object is moving to the left, 12 N is what kind of friction?

19. If the 6 kg object is moving to the left, find its acceleration.

$\boxed{\textbf{6 kg}}$ 20. Fn = _____

$\boxed{\textbf{10 kg}}$ 21. Fn = _____

$\boxed{\textbf{16 kg}}$ 22. Fn = _____

table

20—22. Understanding Normal Force. Find the normal force at each of the surfaces. *Show work below.*

23. Two forces are pulling on a 12 kg object: a 25 N force pulls at 30° N of W; a 35 N force pulls due east.
   A. Find the net force on the object (magnitude and direction again).

   B. Find the acceleration of the object.

   C. What force would be necessary to keep it at equilibrium?

24. Why does an airplane have an easier time flying at sea level than high in the mountains?

25. In very, very old buildings glass windows are warped because glass (a very _____ fluid) flows down over the centuries .

26. Remembering that denser object sink complete the density questions on the back.
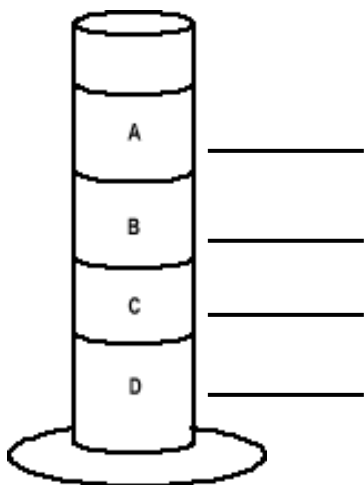
Help on the website: Study Helps/ Chemistry/ Chapter 17/ Density exercises.

Given the following liquid densities: 1.7 g/mL; 3.2 g/mL; 1 g/mL; 0.76 g/mL.

A. Label the density column with where the above liquids will end up.

B. If an object (density 2.45 g/mL) is dropped into the column, where will it land. Draw it or explain.

C. Label on the left side of the column the one liquid you know.

D. If D = m/v, how much mass would 30 mL of liquid A have?