A-Day Due Fri., Oct 20 (Assigned: 10/18)
Reg: due Mon., Oct 23 (Assigned: 10/19)

Forces 3

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

6. Which is usually greater, μ_s or μ_k?

7. Give the three conditions of equilibrium:

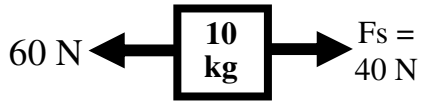
8. If an object is at equilibrium does it have to be at rest?

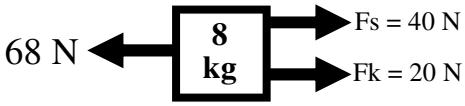
9. A 20 kg object feels the following forces: 12 N left; 8 N right; 4 N left. What force will keep it at equilibrium?

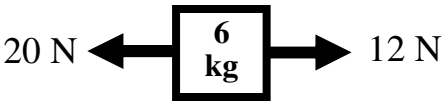
10. Equilibrium or not? A car feels a force of air friction that is *equal* to the force of the engine?

12. Is the above car accelerating?

Understanding Friction







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?

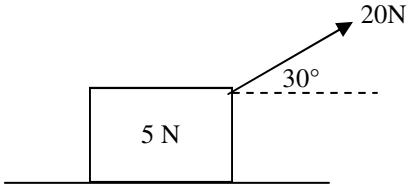
19. If the 6 kg object is moving to the left, find its acceleration.

20. 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?

21. For the object at the right: (Teacher Notes available "Friction at an Angle")
A) Resolve the angled force into its x and y-components.



B) Using the y component you just found to figure out the normal force on the object (remember what other forces are there, too). [It's easy if you use $\Sigma F=ma$ and remember what the acceleration in the y-direction is for an object at rest on a table.]

23. A 20 kg object originally at rest ends up going 35 m/s in 6 seconds.
A) Find the acceleration.
B) Find the force that caused the acceleration.

Use the Kingdom's Chart to answer the following:

24. Which kingdom has both plant-like and animal-like organisms?

25. Which kingdom contains viruses?

26. How do fungi eat?

27. Are heterotrophic organisms consumers or producers?

28. Are plants heterotrophic?

29. Which kingdom has organisms with only one cell and respirate without oxygen?

Actual TAKS Question:

Organism A: Eukaryotic, photosynthetic, nonvascular, gametophytes larger than sporophytes

Organism B: Eukaryotic, heterotrophic, nonvascular, reproduces with spores

Organism C: Eukaryotic, photosynthetic, vascular, sporophytes larger than gametophytes

Organism D: Eukaryotic, photosynthetic, vascular, reproduces with seeds.

30. According to the above information, 3 of these organisms should be placed in the same kingdom. Which of the above organisms should be placed in a different kingdom?