Name: _____

Period:_____

**HW Unit 8:5 — More Conservation of Energy**
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**A-day: Due Thurs., 3/1 (Assig: 2/27)**
**B-day: Due Fri., 3/2 (Assig: 2/28)**

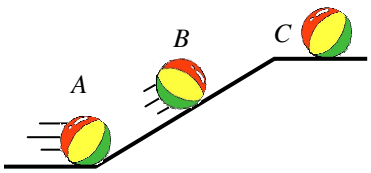
*Match the following situations with their Conservation of Energy Equations.*

1. An object falls without friction.
2. An object falls part way down.
3. An object at rest is pushed.
4. A moving object is slowed down.
5. A moving object is stopped.
6. An object at rest on the ground is lifted up into the air.
7. An object falls and there is air friction.

*Conservation of Energy equations:*

A. $0 + W = Ep$
B. $Ep = Ek$
C. $Ek - W = 0$
D. $Ep = Ep + Ek$
E. $0 + W = Ek$
F. $Ek - W = Ek$
G. $Ep - W = Ek$

8. A 4 kg ball is going 6 m/s at the bottom of a hill. Calculate its energy.




9. What kind of energy does it have at the top?
10. How much Ek does it have at C?
11. How much Ek does it have at B (half-way up)?
12. How much Ep does it have at A?
13. A 6 kg object is lifted up 4 m in 3 seconds. Calculate the power it took to lift it.



14. A 2kg object is moving 4m/s. Friction (a force) stops it in 8 m.
    A) What kind of energy does it have before?
    B) What kind of energy does it have after?
    C) Does $E_{before} = E_{after}$ or was work added or subtracted? (*Pick one of the three choices.*)

    D) Using all of the above, set up a Conservation of Energy equation (like what's on the front page).

    E) Solve for the force of friction.

15. Which one is always work: $W_{out}$ or $W_{in}$ (pick one)?

16. Which one is usually Ep or Ek: $W_{out}$ or $W_{in}$ (pick one)?
17. A person pushes with a 3 N force for 20m on a 2 kg object. The object started at rest and ended up moving 10 m/s.
    A) What kind of energy did it have before?
    B) What kind of energy did it have after?
    C) Where did this energy come from?
    D) Calculate the $W_{in}$.

    E) Calculate the $W_{out}$.

    F) Calculate the efficiency of the energy transfer.