

## “PHUN” WITH “PHREE” BODY DIAGRAMS

**Instructions:** Answer the following questions in your journal. For problems 1-8, draw a FBD for the situation described in each problem. Make sure you identify the following:

- Draw the object as a box/circle
- Draw all forces as vectors (arrows coming from the object in the direction the force is acting, length is the magnitude of the force)
- Label all forces using the short-hand notation described in the notes; include magnitude if possible: the unit for force is the Newton (N).

1. Bugs has placed an anvil with a weight of 600N on a table. (It is at rest)
2. Daffy (mass = 60.0 kg) is hanging motionless while supported by 2 ropes.
3. A rightward force is applied to Tweety causing him to accelerate. Assume the surface is **frictionless**.
4. Diagram all the forces acting on Tweety in the problem above if friction is taken into account.
5. A rightward force of 8 N is applied to a 2.5 kg ACME crate sitting on a table causing it to accelerate. Include 4 N force of friction in your analysis. What is the **net force** on the crate?
6. Porky drops a milk carton with a mass of 0.40 kg, **neglect air resistance**.
7. Elmer Fudd (m = 75.0 kg) goes skydiving and has reached a **constant velocity** as he drops. Include air resistance in your analysis and diagram all forces.
8. Sylvester is moving upwards towards his peak after being booted by Hector the bull dog. **Neglecting air resistance**, diagram all the forces acting on Sylvester as he moves towards his peak.

9. In the situations to the right, there is an unbalanced force (usually called the **net force**) that acts on the object shown by each FBD. A net force exists whenever all vertical forces do not cancel each other and/or all horizontal forces don't cancel out. In each situation, **identify the net force**, including units, and the direction in which it is acting.

10. Describe a possible situation that would create the FBD shown in Situation A.

