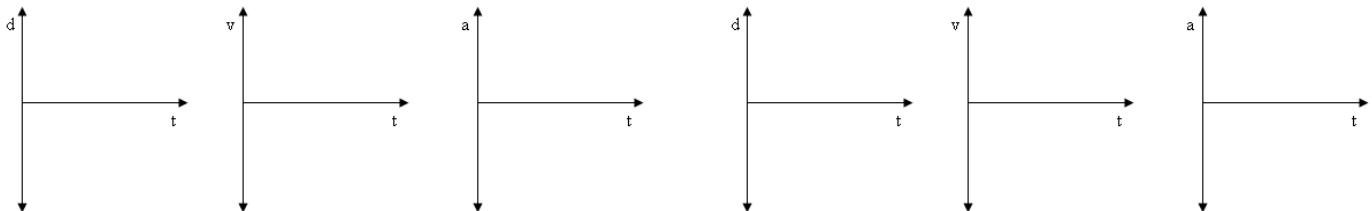


REVIEW SHEET – Forces and the Laws of Motion

1. Read Chapter 4.
2. Terms to know: force, net force, mass, equilibrium, balanced/unbalanced forces, normal force, applied force, free-body diagram, action-reaction pairs, kinetic friction, static friction, terminal velocity, gravitational field strength.
3. Define:
 - a) Inertia
 - b) Weight
 - c) Equilibrant
 - d) Coefficient of friction
4. What was the name of Newton's most famous book? When was it published? Why was it important?
5. State Newton's:
 - a) First Law of Motion
 - b) Second Law of Motion
 - c) Third Law of Motion
6. a) What are the four fundamental forces?
 b) Which are long range?
 d) Which is the strongest?
 c) short range?
 e) Which is the weakest?
7. a) Compare mass and weight.
 b) State the units and symbols for each.
 c) What formula relates these two quantities?
8. Be able to:
 • apply Newton's three laws of motion • draw and label a free-body diagram • identify the net force acting on an object • calculate with the formula $F_{net} = ma$ • calculate mass and weight • estimate weights and masses • calculate with the formula $F_f = \mu F_N$ • resolve the force of gravity into two components for an object on an inclined plane
9. Sketch the graphs of motion for an object acted on by:
 - a) balanced forces
 - b) unbalanced forces



10. If a heavier student pushes a lighter student,
 - a) who experiences a greater force?
 - b) who accelerates more?
11. a) What is cause of the normal force?
b) Is it always the same as the weight of an object? Give examples when it is not.
12. What is the difference between the acceleration of gravity and the force of gravity?
13. What are the two names for "g"?
14. If a scale is in an elevator, when will it read
 - a) normal?
 - b) greater than normal?
 - c) less than normal?
15. a) What is the cause of the frictional force?
b) What is the difference between the force of friction and the coefficient of friction?
c) What factors influence the force of friction? Which do not?
d) What factors influence the coefficient of friction? Which do not?
16. Which type of friction is stronger – static or kinetic?
17. a) What happens when a falling body reaches its terminal velocity?
b) Why does it reach a terminal velocity?
18. What are some properties of systems in equilibrium?
19. What is the rule for the equilibrium of three force vectors?
20. If an object is in equilibrium on an inclined plane, state a formula for:
a) the weight of the object
b) the parallel component of weight
c) the perpendicular component of weight
d) the normal force
e) the frictional (or applied) force