Physics – chapter 3 test review

Quiz on Vectors

1. Recognize that movement can happen in two dimensions, not just one dimension
2. Know the difference between “scalar” and “vector” quantities
3. Be able to draw vectors showing magnitude and direction
4. Know that when you multiply or divide vectors by scalars, you get a vector
5. Draw pictures showing vector addition and subtraction
6. Draw the resultant vector using other vectors
7. Use the Pythagorean theorem to solve for unknowns in right triangles (a2+b2=c2)
8. Use cosine, sine and tangent functions to solve for unknowns and find the angle in a triangle
9. Use a coordinate (x and y axis) system to draw vectors, resultant vectors and solve for unknown distances and angles
10. Be able to use compass directions to describe the direction of a vector or movement

Quiz on projectiles and relative motion:

1. Know what a projectile is and be able to give some examples
2. Recognize that projectile motion is NOT like free fall motion, although it is still subject to the acceleration of gravity (-9.81m/s2)
3. Recognize that projectiles have a parabolic trajectory
4. Projectiles have an X and Y component
5. The only time there is no Y component in the path of a projectile is at the top/peak before it succumbs to gravity and starts to fall
6. Recognize that air resistance shortens the path of a projectile (both in X and Y components)
7. Be able to calculate the X and Y components of a projectile using kinematics equations
8. Be able to calculate the final velocity of a projectile using kinematics equations
9. Be able to calculate the time the object would be in the air using kinematics equations
10. Recognize that motion is relative because it depends on a person’s frame of reference
11. Be able to understand the relative motion of objects based on different frames of reference (i.e. motion of a train while you are on the train, motion of a train by someone outside the train, motion of a train and one passes going the same direction, motion if a train passes going in an opposite direction etc.)
12. The general form for the calculation of relative motion is Vac = Vab + Vbc