Projectile Review – Short

1.) How many parts are in a projectile problem, and what are they?

2.) A rock is thrown horizontally from a cliff at $+15\frac{m}{s}$, if the cliff is 20.0 m high:

    a.) how long will it take to reach the ground?

    b.) how far from the base of the cliff will it land?

    c.) what are its final vertical and horizontal velocities?

3.) A cliff diver wishes to clear $3.0\ m$ of rock from the base of a $20.0\ m$ high cliff. With what initial velocity must the diver jump (horizontally) to land safely in the water?

4.) A cat is thrown at $+3.0 \frac{m}{s}$ off a $75\ m$ high building, will it strike a physics student who is standing $12\ m$ form the building's base? Prove your answer.

5.) A football is kicked at $40°$ with a velocity of $+15 \frac{m}{s}$, find its total air time, range, and max height.

<u>Answers</u> – 1.) 2, vertical and horizontal   2.) $2.02\ s$, $30\ m$, $-20 \frac{m}{s}$, $+15 \frac{m}{s}$ 3.) $+1.5 \frac{m}{s}$

       4.) Misses by $30.\ cm$ 5.) $1.97\ s, 23\ m, 4.74\ m$