**Chapter 3 - Two dimensional motion and vectors:**

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| **Vectors:****Finding Components:**1. Draw components from tail to tipUse arrows for components2. Find the length of the sides:θhypoppadjopp = hyp Sin(θ)adj = hyp Cos(θ)3. Decide x or y, + or -(+, +)(+, -)(-, +)(-, -)4. Write it as units x + units y**Adding two component vectors:** A = 1 m x + 2 m y B = 2 m x + 3 m yA+B = 3 m x + 5 m y (Add x to x and y to y)**Converting Components to Angle Magnitude:**1. Draw the vectorDraw x, and from there draw y as arrowsThe vector goes from the tail of the x to the tip of the y4.0 m3.0 mθmag.e.g. 3.0 m x + -4.0 m y:2. Find the angle using Tan-13. Find the magnitude using the Pythagorean theorem | **Projectile Motion:**Fill in given, solve. Time is shared by both sides**Cliff Problems:** Purely horizontal initial velocity, so Vi vertical = 0**Arc Problems:**1. Break launch velocity into components2. Fill in H/V table 3. For level range remember vertical Vf = -Vi4. To get greatest height remember vertical Vf at top = 0**Boat Crossing River:**1. Fill this in:Solve. Time is shared by both sides.**Range Equation:**e.g. v2/9.8\*sin(2\*angle), e.g. sin-1(9.8\*range/v2)/2 |