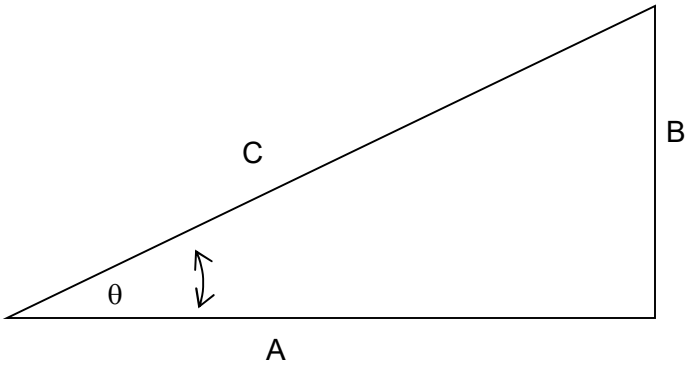

$D_x = V*t$
$D_y = 1/2at^2$
$C^2 = A^2 + B^2$
$g = 9.81 m/s^2$

Trigonometry:
cosθ = a side adjacent ÷ c hypotenuse
sinθ = b side opposite ÷ c hypotenuse

Velocity at an angle = V_o
V_{yo}= velocity Sinθ = $V_o \sin\theta$
V_{xo} = velocity Cosθ = $V_o \cos\theta$

Velocity at a given time:
$V_{xo} = V_o \cos\theta$ (no acceleration constant)
$V_{yo} = V_o \sin\theta - gt$ (acceleration of gravity's affect on velocity)

Time in flight
Tu = Time up in the air
2Tu = Time up and time down
$Tu = V_{yo} \div g$

Maximums
Height Ymax = $V_{yo}Tu - 1/2\ gTu^2$
Distance Xmax = $V_{xo}\ 2Tu$

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For each problem below:

1) Draw a diagram
2) Label the parts of the right triangle:
   a. Hypotenuse (Velocity)
   b. Vx (Velocity in the X direction)
   c. Vy (Velocity in the Y direction)
   d. The Angle
   e. The maximum height of the projectile (Ymax)
   f. The distance of the projectile (Xmax)
   g. (Tu) Time Up
3) You must write out each equation, before inserting the numbers and solving the equation; box the final answer (e.g.)
   a. $Vx = V_o \cos\theta$
   b. $Vx = 45.6 m/s (\cos 30.0)$
   c. $\boxed{Vx = 39.5 m/s}$
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Homework:

5pts) Problem 1 (Click on  and watch how I solve the problem):
A cannon shoots a cannon ball at 30.0 degrees with a velocity of 45.6m/s. What is the highest the cannon ball will ascend in the air and the furthest distance it will fly?

5pts) Problem 2:
A cannon shoots a cannon ball at 37.0 degrees with a velocity of 67.6m/s. What is the highest the cannon ball will ascend in the air and the furthest distance it will fly?

5pts) Problem 3:
A cannon shoots a cannon ball at 27.3 degrees with a velocity of 38.2m/s. What is the highest the cannon ball will ascend in the air and the furthest distance it will fly?

5pts) Problem 4:
A cannon shoots a cannon ball at 74.1 degrees with a velocity of 22.3m/s. What is the highest the cannon ball will ascend in the air and the furthest distance it will fly?