Subject: A math question.
Posted by jnz on Thu, 26 Apr 2007 14:43:31 GMT
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This, imo is pretty tricky. It needs to be done, though, I'm hoping a lot of the people on these forums are as smart as they say they are. No, this is not homework or something just to test everyone. It is for a program i am making.

L = (X+S/2)*W/S)-((O*W)/100)

I need to find X when i know L. If someone could do this i would be very grateful.

Subject: Re: A math question.
Posted by Genesis2001 on Thu, 26 Apr 2007 14:46:24 GMT
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So....You just need to solve for "X"?

-MathK1LL

EDIT: Got it!

X = 2((S/W)*((O*W/100) + L)) - 2

Subject: Re: A math question.
Posted by jnz on Thu, 26 Apr 2007 14:47:30 GMT
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I need to change the formulae to get X when i know L.

Subject: Re: A math question.
Posted by Genesis2001 on Thu, 26 Apr 2007 14:49:23 GMT
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MathK1LL wrote on Thu, 26 April 2007 08:46EDIT: Got it!

X = 2((S/W)*((O*W/100) + L)) - 2

Subject: Re: A math question.
Posted by mrpirate on Thu, 26 Apr 2007 14:51:51 GMT
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X = (S * (L + (O*W)/100))/W + S/2

I think

Subject: Re: A math question.
Posted by jnz on Thu, 26 Apr 2007 14:57:21 GMT
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I tried MathK1ll's and it didn't work. Just trying mrpirate's.

EDIT: mrpirate's didn't work. It looks like it needs half of the total value taken away. but thats just a guess.

Subject: Re: A math question.
Posted by Try_lee on Thu, 26 Apr 2007 15:24:51 GMT
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Mr. Pirate was almost right. He should have had -s/2 instead of +s/2.

Subject: Re: A math question.
Posted by jnz on Thu, 26 Apr 2007 15:38:43 GMT
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Almost there. the values still need to be a little higher. thanks though

Subject: Re: A math question.
Posted by mrpirate on Thu, 26 Apr 2007 15:48:10 GMT
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oops

kinda pathetic considering I just wrote a math exam

Subject: Re: A math question.
Posted by Tunaman on Thu, 26 Apr 2007 16:32:11 GMT

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(S((O - 50)*W + 100L))/100W

Subject: Re: A math question.
Posted by jnz on Thu, 26 Apr 2007 16:43:16 GMT
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Ralphzehunter wrote on Thu, 26 April 2007 17:32(S((O - 50)*W + 100L))/100W

Thanks you soo much . I have been breaking my head over this question for days.

And thank you to everyone else that at least tried.

Just in case everyone was wondering, it is for the SEye. The original formula converts the map coord to the picture coord. this does it the other way round.

Subject: Re: A math question.
Posted by Tunaman on Thu, 26 Apr 2007 16:43:49 GMT
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No problem.

Subject: Re: A math question.
Posted by Genesis2001 on Thu, 26 Apr 2007 19:12:51 GMT
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:/

My brain was "math-ed"-out today and this past week.... bleh.

-MathK1LL

P.S.

I'm going to retry the problem again and see though...

Subject: Re: A math question.

Posted by Viking on Thu, 26 Apr 2007 19:14:52 GMT
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AHHH! Math my brain hurts...

Subject: Re: A math question.
Posted by mrpirate on Thu, 26 Apr 2007 20:31:15 GMT
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it's just algebra...

Subject: Re: A math question.
Posted by Jerad2142 on Tue, 01 May 2007 17:15:04 GMT
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Can anyone give me a formula for how I would calculate what angle an artillery would have to aim at if I knew: gravity, speed of the projectile, distance away the object is from the artillery, height of the object compared to the artillery, and 0 air resistance. This is also for a program, or game more likely *cough*new AI for Renhalo*cough*.

Subject: Re: A math question.
Posted by Zion on Tue, 01 May 2007 22:42:47 GMT
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Not completely sure but the logistic side of this may help you.

Automatic Ballistic Artillery Cannon using The Wire Addon for GMod10

Maybe the large diagram further down with math operations and constants can help you with the logic of programming this. Be warned though, most of the 'gates' and 'arithmatic chips' are programmed into channels of inputs and outputs, but they should be labeled on the diagram anyway.

Subject: Re: A math question.
Posted by StealthEye on Wed, 02 May 2007 16:10:58 GMT
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mathomatic ftw!
http://mathomatic.orgserve.de/math/

1-> L = (X+S/2)*W/S-((O*W)/100)

```
          S
      (X + -)*W
         2      O*W
#1: L = --------- - ---
         S       100

1-> simp

        1    O    X
#1: L = W*(- - --- + -)
        2   100   S

1-> X

       L   1    O
#1: X = (- - - + ---)*S
       W   2   100
```
Even without it is wasn't too hard though.

Subject: Re: A math question.
Posted by Jerad2142 on Wed, 02 May 2007 17:42:56 GMT
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I am more or less just looking for a flat out formula to do this (yes I know it is going to be multiple formula's combined). I have searched the Internet before, but no luck, I just think it would be awesome for Renegade to have a good arching projectile AI.

Subject: Re: A math question.
Posted by Crusader on Wed, 02 May 2007 17:46:23 GMT
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Kinda like the Grenadier? An AI Grenadier who never misses would be nice!

Subject: Re: A math question.
Posted by jnz on Wed, 02 May 2007 20:32:00 GMT
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Mabe a homing missile that is shot straight up into the air?

Subject: Re: A math question.
Posted by Doitle on Wed, 02 May 2007 21:04:17 GMT
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Jerad Gray wrote on Tue, 01 May 2007 12:15Can anyone give me a formula for how I would calculate what angle an artillery would have to aim at if I knew: gravity, speed of the projectile, distance away the object is from the artillery, height of the object compared to the artillery, and 0 air resistance. This is also for a program, or game more likely *cough*new AI for Renhalo*cough*.

Here you go.

R = d + v*cos(theta)*(v*sin(theta)+SqRt(v^2*.5*(1-cos(2theta))-(2*A*(0-h)))/A)

I'm pretty sure that's the Master Projectile Equation I derived back in Highscool. I still had the prgoram I made for the TI that ran the equation. Basically here's the breakdown. V = your muzzle velocity. Theta is the angle off the horizontal. A is your accelleration constant (e.g. g=9.81m/s^2) H is your initial height. D is your initial X displacement. (How far back from the edge of the cliff you are.

Hope that helps. If you can't make sense of it I'll go put it into math type to make it look a bit prettier.

Subject: Re: A math question.
Posted by BlueThen on Wed, 02 May 2007 21:26:58 GMT
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7?

Subject: Re: A math question.
Posted by Doitle on Thu, 03 May 2007 10:19:46 GMT
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There it is all spiffy. I included an example calculation.

File Attachments
1) projshot.jpg, downloaded 565 times

$$Range = d + (v\cos\theta)\frac{(v\sin\theta + \sqrt{\frac{1}{2}v^2(1-\cos\theta) - (2A(0-h)}}{A}$$

$$Range = 0 + (25\cos 60)\frac{(25\sin 60 + \sqrt{\frac{1}{2}25^2(1-\cos 60) - (2(9}}{9.8}$$

$$Range = 42.5m$$

Subject: Re: A math question.
Posted by CarrierII on Thu, 03 May 2007 14:37:05 GMT
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From what I remember, an SSE2 equipped CPU will run that calculation better (lots of extra maths instructions in there)

Edit - I can't spell!

Subject: Re: A math question.
Posted by Jerad2142 on Thu, 03 May 2007 16:31:50 GMT
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Doitle wrote on Wed, 02 May 2007 15:04
Here you go.

R = d + v*cos(theta)*(v*sin(theta)+SqRt(v^2*.5*(1-cos(2theta))-(2*A*(0-h)))/A)

I'm pretty sure that's the Master Projectile Equation I derived back in Highscool. I still had the prgoram I made for the TI that ran the equation. Basically here's the breakdown. V = your muzzle velocity. Theta is the angle off the horizontal. A is your accelleration constant (e.g. g=9.81m/s^2) H is your initial height. D is your initial X displacement. (How far back from the edge of the cliff you are.

Hope that helps. If you can't make sense of it I'll go put it into math type to make it look a bit prettier.

Glares theta!!! Sin, cos, and tan are annoying enough, you have to put in theta. But in all seriousness I can not remember how to derive theta (it seems like it was sin's or cos's reciprocal, but I do not remember).

And the square root of "(v^2*.5*(1-cos(2theta))"

"D is your initial X displacement. (How far back from the edge of the cliff you are." Where does distance come into play?

But besides those few things it looks like it will work, now all I have to do is make the computer calculate it 10 times every second and we will be good (just kidding, I am not out to kill everyones computers). But Thanks for your help so far Doitle, you get me through this and I will make sure to give you credit.

gamemodding wrote on Wed, 02 May 2007 14:32Mabe a homing missile that is shot straight up into the air?
Thats what I use to do, its good, until the artillery shell starts chasing you (or curving up trying to get jets). And if you make it so it doesn't track that much, it always comes up short. So that is what drove me to actually want to make a formula.

Subject: Re: A math question.
Posted by Jerad2142 on Thu, 03 May 2007 19:23:17 GMT
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Jerad Gray wrote on Thu, 03 May 2007 10:31*Glares* theta!!! Sin, cos, and tan are annoying enough, you have to put in theta. But in all seriousness I can not remember how to derive theta (it seems like it was sin's or cos's reciprocal, but I do not remember).

Ignore I said that, half an hour later I realized that theta was just the name of the angle.

Subject: Re: A math question.
Posted by Doitle on Fri, 04 May 2007 04:21:06 GMT
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I'm not positive what you mean about the distance coming into play.

D = your initial displacement from the so called origin.

R = the Range, how far the shot travels horizontally.

So lets say you knew that from a certain point, the origin, an enemy was 40m away. You knew

that you were 13m from the origin. You would plug in 13 for d and 40m for R. Then plug in your muzzle velocity for V and your gravitational constant for A and you could solve the angle neccesary to peg that enemy.

Subject: Re: A math question.
Posted by Jerad2142 on Sat, 05 May 2007 17:07:43 GMT
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So is the 13m the length of the muzzle?

R = d + v*cos(theta)*(v*sin(theta)+SqRt(v^2*.5*(1-cos(2theta))-(2*A*(0-h)))/A)

I am trying to solve for the angel, shouldn't R and A switch spots?

Subject: Re: A math question.
Posted by Doitle on Sat, 05 May 2007 21:41:19 GMT
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Theta is the angle not A. A is your graviational accelleration constant, for example g=9.81. I will solve it for Theta for you so you can just straight plug in. The d is not really used in your application.

Subject: Re: A math question.
Posted by Jerad2142 on Fri, 18 May 2007 16:58:05 GMT
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Thanks for the help, I was just confusing myself, now all I have to do is plug and play.