Hi, I'm Greg. I'm a NYC tutor! I love helping students. I tutor many subjects, assist with homework help, etc. I mainly specialize in specialized tests.

As it turns out, I haven't been able to get to do as many livestreams as I have in past years (yet, hopefully that changes). Therefore, I thought it would be fun to start a Problem Of The Day Series. I will put up a problem and leave it running for a while. You guys will then analyze it, and come up with possible solutions and alternative solutions on your own. I'll eventually post the answer in some manner.

For now we'll play it by ear how that will happen and for how long I'll leave up a problem. But right now I'm thinking of keeping the problem up maybe 2 hours minimum and maybe even in some cases 4 or 5 hours depending upon the dynamics and my situation. Unlike my AMA (Ask Me Anything) lifestream sessions, I will not be checking in every few minutes although I may from time to time join into the discussion. Again, the idea is for you guys to discuss out the problem.

Please be respectful to each other in this endeavor and let's make this fun, educational and forward-thinking. Keep the comments within the spirit of what I'm doing here. Please email me at GregsTutoringNYC@gmail.com if needed.

HERE'S THE PROBLEM: <————
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Given that a – (b – c) = (a – x) – c

If b is a/2 and c is b/2, what is the value of x?

HERE'S THE SOLUTION:
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One approach to this question is to just do the variable replacements. That gives:

a – (a/2 – b/2) = (a – x) – b/2

Solving for x gives:

```
a – a/2 + b/2 = a – x – b/2
    a/2 + b/2 = a – x – b/2
-a            -a
   -a/2 + b/2 =    -x – b/2
        +b/2          +b/2
   -a/2 + b   =    -x
    a/2 – b   =     x
```

That looks like we boxed ourselves in with nonsense but then you realize you can replace b again, so you get:

```
    a/2 – a/2 = x
            0 = x
```

That's probably going to be error-prone on test day.

Another observation is that if b is a/2 and c is b/2 then c is a/4. Does that help us? Let's see:

a – (a/2 – a/4) = (a – x) – a/4

Well, looks like we have to play some games with common denominators. Let's do so:

```
a – (2a/4 – a/4) = 3a/4 – x
a – a/4          = 3a/4 – x
3a/4             = 3a/4 – x
-3a/4            -3a/4
0 = -x .: x = 0
```

This approach gives us some insight into the problem that may have leaped out from the get-go: That b − c must be c if b = a/2 and c = b/2(or a/4).

And if b − c must be c, then x must be zero. Ya? Consider the original equation:

a − (b − c) = (a − x) − c

Substituting:

a − c = a − x − c
a − c = a − c − x
0 = − x

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