

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) livestream 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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A parking meter will only accept thingamajig or whatchamacallit coins. A thingamajig is worth 5 and a whatchamacallit is worth 3. I need a total of exactly 30 to park. What's the minimum number of coins I can use? And oh, note that for every 10 hours I park the required amount decreases by 1. For every hour I park over 10 hours the required amount decreases by 0.5. I intend to park for 14 hours.

HERE'S THE SOLUTION:
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Since I want to park for 14 hours, the total amount of 30 is decreased by 1 for it being more than 10 hours, and 4×0.5 or 2 for the additional 4 hours. Therefore the exact amount I need is $30 - 1 - 2 = 27$.

To use the minimum number of coins to establish 27, I need to consider that a thingamajig is worth more than a whatchamacallit. Therefore I am going to use thingamajigs as my control variable; they'll accumulate faster, and therefore they'll be less of them to get us where we need to go.

Next, I'm going to divide my total by the value of a thingamajig to make my first try through things:

$$27 / 5 = 5 \text{ (with a remainder of 2)}$$

So at most I'll have 5 thingamajigs. Since the remainder 2 is not a multiple of 3, then 5 is too many thingamajigs. So let's see:

Try 5 thingamajigs: $27 - (5 \times 5)$ has a remainder of 2, 2 is not divisible by 3

Try 4 thingamajigs: $27 - (5 \times 4)$ has a remainder of 7, 7 is not divisible by 3

Try 3 thingamajigs: $27 - (5 \times 3)$ has a remainder of 12, 12 is divisible by 3!

So that means we have 3 thingamajigs and 4 whatchamacallits

$$\therefore 3 + 4 = 7 \text{ coins total}$$

- Greg / GregsTutoringNYC@gmail.com LLAP ☺