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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The following chart shows my stock transactions' history:

Stock Purchases and Sales

STOCK	BUY	SELL
A	0.33	9/30
B	0.33	5/12
C	0.33	0.36
D	0.33	9/24
E	0.33	15/48

Which stock made me the least money, or if no profit, the largest loss?

HERE'S THE SOLUTION:
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Since the buy price is the same for all stock purchases, we only need to compare the sell prices and see which is the smallest value.

One way to solve this is to do each division and compare the decimal values. I'll only write out as many decimal places to make each value distinguished from the others in cases where the decimal digits might be many digits:

A $9/30 = 3/10 = .3$

B $5/12 = .41\overline{6}$

C $.36$

D $9/24 = 3/8 = .375$

E $15/48 = 5/16 = .3125$

The smallest value is for A.

Another way to solve this is by comparing each fraction pair in turn against each other using the cross product. Whichever is smallest, compare that to the next fraction until there are no more choices left. That is:

9/30 ? 5/12 .: 108 vs 150 .: 9/30 is the smallest
9/30 ? .36 ——> 9/30 ? 36/100 .: 900 vs 1080 .: 9/30 is the smallest still
9/30 ? 9/24 .: 216 ? 270 .: 9/30 is the smallest
9/30 ? 15/48 .: 432 vs 450 .: 9/30 is the smallest

Although I started comparing against A, it would be the same process no matter which you picked first, although with a different set of numbers one of them may have leaped out as a possible better choice to start with.

Also, in these comparisons, you could have worked with simpler numbers when doing the cross products by simplifying some of these fractions but on the flip side that may have added extra time. Maybe.

Yet another way to solve this was to note that each was close to being 1/3. This strategy often turns out to be the quickest approach. In fact each fraction was 1/x away from 1/3 where x is the denominator being used by the choice. In other words:

For A 9/30 it is 1/30 less than 10/30
For B 5/12 it is 1/12 more than 4/12
For D 9/24 it is 1/24 more than 8/24
For E 15/48 it is 1/48 less than 16/48

B and D are over 1/3 hence out of the running since there are choices less than 1/3. A and E are under 1/3 but 1/48 is closest to 1/3 than 1/30 as it has a larger denominator. This means 9/30 is further away and therefore the smallest value of all the fractions.

This leaves comparing 9/30 to .36 as our final comparison. As .36 is 36/100 that comes into play because it is about 2 2/3 away from 33 1/3 divided by 100 which means, as with the E comparison, that C is closer to 1/3 than A, therefore A is the smallest of all the fractions and the .36 decimal.

My stock loss on A is .03 but that is not what the question asks.

It's not so much this question is hard, it's that it's annoying.

— Greg / GregsTutoringNYC@gmail.com   LLAP ☺