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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$1.\overline{1} \times 1.\overline{1}$

(A) $1.\overline{21}$ (B) $1.2\overline{1}$ (C) $1.\overline{2}$ (D) 1 19/81   (E) 1 21/100

HERE'S THE SOLUTION:
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The multiplication does yield a repeating decimal:

$1.\overline{1} \times 1.\overline{1} = 1.\overline{2345678901}$

However, that value is none of the choice provided.

Also, choice (A), (B), and (C) are not mathematically supported by this multiplication,
instead being illusory fabrications, or perhaps, wishful thinking.

Similarly, 1.21 ala (E) stinks just as much, as there is no basis to toss the repeating
decimals away.

Process of Elimination, one often used test-taking strategy, points us to Choice (D) as
the answer. But you should kick and scream to find answers and their rationale, so don't
let (D) win by de facto fiat.

Note that $.\overline{1}$ is $\frac{1}{9}$, therefore $1.\overline{1}$ is $1\frac{1}{9} = \frac{10}{9}$

So the problem can be rewritten as $\frac{10}{9} \times \frac{10}{9} = \frac{100}{81} = 1\frac{19}{81}$

Oh yeah.

Food For Thought: The problem with hard questions is that they're hard. And the problem
with easy questions is they're easy. Dwell there. This means everything it does and
nothing it doesn't. Sometimes you just need to go deep.

More Food For Thought: When faced with the choices above, sometimes it make sense to toss the outlier, in this case choice (D), I mean, "after all" it "couldn't" be the right answer. But sometimes too, if you give the outliers an extra look—see, they are just the thing you need to poke your internal numeracy radar.

Oh oh yeah.

— Greg / GregsTutoringNYC@gmail.com   LLAP ☺