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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Sally and Fred have a foot race at sea level with no wind. Sally runs 10 miles per hour
and Fred runs half that speed. When the race starts Fred is given a 10 mile lead. At the
point where and when Sally catches up to Fred they immediately turn around and race back
to the finish line using the same route in reverse. After Sally crosses the finish line,
Sally immediately begins to run on a circular track 330 feet long. How many revolutions
does Sally make when Fred finally crosses the finish line? Use 3.14 for π.

HERE'S THE SOLUTION:
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First figure out how long it will take them to meet:
S x t = F x t + 10miles
10mph x t = 5mph x t + 10miles
5mph x t = 10miles
t = 2 hours

.: Sally ran 10mph x 2h = 20miles
   Fred ran 5mph x 2h = 10m + the 10miles lead = 20miles
   Sally catches up to Fred 20 miles into the race.

.: For Sally to run back 20 miles will take 2 hours again
   If Fred runs for 2 hours with no lead he travels 10 miles

.: Fred still has 20 – 10 = 10 miles to go

.: Sally will run 20 miles on the circular track while Fred runs his last 10 miles to the
finish line

   1 miles = 5280 ft
   10 miles = 52800 ft
   52800 / 330 = 160
   160 x 2 = 320 revolutions
   Using π is not necessary
   (And yes I could have 5280 x 20 / 330 too I just found working with multiples of 10 and
multiples of 2 more handy.)

– Greg / GregsTutoringNYC@gmail.com   LLAP ☺