

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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The width of a rectangle is the same value as the circumference of a circle with a radius of 2. The length of the same rectangle is the same value as the area of the same circle. What is the area of the rectangle divided by the perimeter of the rectangle rounded to the nearest integer?

HERE'S THE SOLUTION:
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See other page

The area of a circle is πr^2
 The circumference of a circle is $2\pi r$
 The area of a rectangle is $l \times w$
 The perimeter of a rectangle is $l + w + l + w = 2l + 2w$

$$\therefore \text{The area of the rectangle is } \pi r^2 \times 2\pi r = 2\pi^3 r^3$$

$$\therefore \text{The perimeter of the rectangle is } 2(\pi r^2 + 2\pi r) = 2\pi r^2 + 4\pi r = 2\pi r(r + 2)$$

The problem asks us to solve area of the rectangle / perimeter of the rectangle

$$\therefore \frac{2\pi^3 r^3}{2\pi r(r + 2)} = \frac{\pi r^2}{r + 2}$$

The problem tells us the radius is 2

$$\therefore \frac{\pi 2^2}{2 + 2} = \frac{4\pi}{4} = \pi \text{ rounded gives an integer value of } 3$$

Alternative/Double check:

The circumference of the circle is $2\pi r = 2\pi 2 = 4\pi$

The area of the circle is $\pi r^2 = \pi 2^2 = 4\pi$

The area of the rectangle is $4\pi \times 4\pi = 16\pi^2$

The perimeter of the rectangle is $4\pi + 4\pi + 4\pi + 4\pi = 16\pi$

$$\frac{\text{area of the rectangle}}{\text{perimeter of the rectangle}} = \frac{16\pi^2}{16\pi} = \pi$$

- Greg / GregsTutoringNYC@gmail.com LLAP ☺