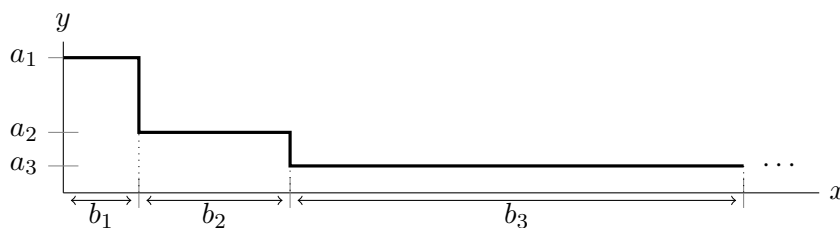


2. [7 points] The region depicted below consists of infinitely many adjacent rectangles. (Only the first three rectangles are actually shown, and they are not necessarily drawn to scale.)

For $n = 1, 2, 3, \dots$, the n th rectangle has height $a_n = \frac{1}{5^{n/2}}$ and width $b_n = n!$.



- a. [5 points] Write an infinite series that gives the total volume of the solid formed by rotating the entire region (all of the rectangles) around the x -axis.

- b. [2 points] Does the infinite series that gives the total volume of the solid formed by rotating the entire region (all of the rectangles) around the x -axis converge or diverge?

CIRCLE ONE:

Converges

Diverges

State the name of the test you would use to justify your answer. If you would use the comparison test or limit comparison also give a valid comparison series. You do not need to actually write out a full justification. (If you do not know the name of the test you would use, state the test itself.)