LE2.1

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LE2.1.1: Analog signaling

4/4 points (ungraded)

Consider an analog image processing system built entirely from COPY blocks, which when given V volts on their input are designed to produce V volts on their output. Armo, an inexpensive brand of COPY blocks, comes close to meeting the specification, but produces an output with up to a 1% error. So for a V volt input, an Armo COPY block will produce an output voltage in the range $0.99 \cdot V$ to $1.01 \cdot V$.

If an Armo COPY block has an input of 0.5 volts, what are the smallest and largest voltages we might measure on its output? Please give a numeric answer to the nearest .001 volt.

Smallest output voltage (volts): 0.495 ✔

Largest output voltage (volts): 0.505 ✔

Now consider a system that uses 50 Armo COPY blocks connected in series, i.e., the output of one block is connected to the input of the next block. If a signal of 0.5 volts is input to the first block in the series, what is the range of voltages we might measure on the output of the fiftieth block? Please give a numeric answer to the nearest .001 volt. Hint: the answer is *not* simply an increase or decrease of $0.01 \cdot 0.5 \cdot 50$ volts.

Smallest output voltage (volts): 0.303 ✔

Largest output voltage (volts): 0.822 ✔

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- the amazing childrens university — wheres the pole!!!!!!!!!!!! — 3
- Relation to the Compund Interset Formula — You can just solve the question by applying the values in the formula for compund interest. A = P*(1+r/100)^t — 3
- LE 2.1 Problem 2 Geometric Sequence — Hi, I would like to bring this question for discussion on the 50 blocks armo question. I have reviewed the geometric sequence materia... — 3
- [STAFF] An answer with 4 or more decimals is not accepted for the largest voltage — 9.5 *(1.01^50) = 0.822315910922 which is not accepted as a correct answer. 0.8223 was not accepted either. — 5
- Process behind problem 2 — I got the answer by just making a for loop and multiplying the previous nodes voltage by .99 and 1.01 each time. I knew it was the bru... — 8

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