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CS311
Proof of the number of levels in a perfect binary tree

You may type or handwrite your answers. If it is not legible, you will not receive credit.

Submit a hardcopy at the beginning of lecture. Absolutely NO late submissions will be accepted (anything submitted after lecture started). If you have to skip class or cannot come to class on time, you have to email it to me before the class starts (printing deduction -5%). No need to submit it to CC.

<Question>
Prove that the total number of levels in a perfect binary tree is $\log_2(n+1)$ where n is the total number of nodes. Use PMI (principal of mathematical induction).

Write out a formal proof like what you did in your discrete math class. Write a lot of explanations so readers can understand your work.