A store is trying to sell a desk, and they want to both mark-up the price and give a discount to the customer at the same time. Does it matter which order they do this?

1. Assume the desk costs \$500. The store first marks the price up by 20% and then gives a discount of 30%. What is the price after these changes?

2. Now assume they first give the 30% discount and then mark the price up by 20%. What is the price now? Does it matter which order you do these operations in?

3. Now assume the desk costs $\$P$ dollars. If the store marks up the price by 20% and then gives a discount of 30%, what is the net change in the price?

4. If the store carries out this process every day, how many days will it take for the price to be below $\frac{1}{2}P$?

5. Assume that you know the store is following this procedure, and you have an amount $\$D$ that you are willing to pay for this desk. Describe the process you would need to use to determine how long you need to wait until the price gets below your desired level. Are there any values of D where the price will never get to that level?