**Exercise 2**

Financial Projection for a Candy Company (Sensitivity Analysis)

You built the **Overall Financial Model**. To check that your model is correct, **double check** that the **Operating Income in Year 7 is $52,093**.

The last two questions in Exercise 1 were sensitivity analysis questions: *analysis that helps us understand how the outputs of the model change when we change some inputs.* This handout does more of that. Let's explore how sensitive the Operating Income is to two key assumptions (inputs) in the model:
- Per-unit cost
- Growth rate of stores

Question: How high could the <u>per-unit cost</u> be and just barely break even in Year 5? (Base case is 20 cents for per-unit cost, and Operating Income in Year 5 in the model is $46,663, so the breakeven cost has to be higher than 20 cents). Can you estimate it from this graph?
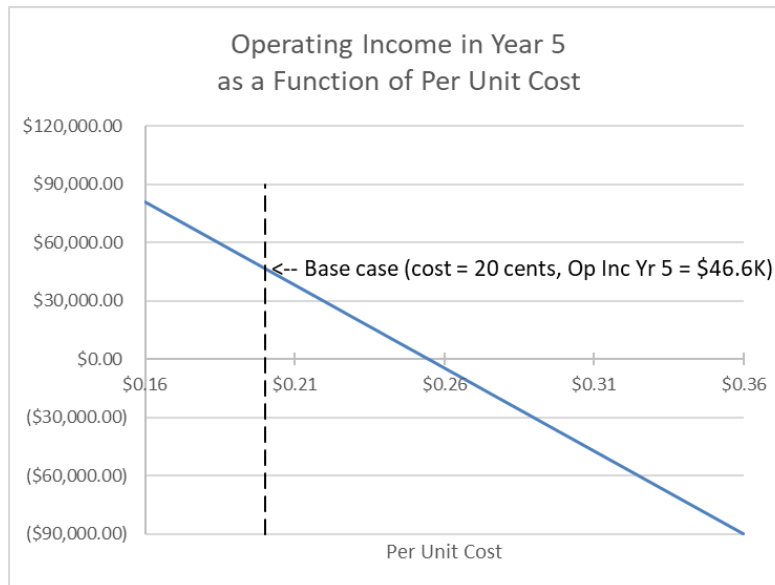
There are many ways to produce a graph like this. One way to do it is to use the Data Table tool in Excel. On my webpage for this short course, under Module 1 screencasts, I have a link to a YouTube video demonstrating the Data Table tool (for a different model). Watch it and see if you can create the data table for this setting (see and then construct a graph.

	Per Unit Cost	Year 5 Operating Income	
Set up your table with the first column containing the values of the INPUT you want to vary.		$46,663.81	<--Formula reference
	$0.16	$80,842.51	
	$0.18	$63,753.16	
	$0.20	$46,663.81	
	$0.22	$29,574.46	
	$0.24	$12,485.11	
	$0.255	$0.00	
I varied cost from 16 to 36 cents. I later changed 26 cents to the breakeven value.	$0.28	($21,693.59)	
	$0.30	($38,782.94)	
	$0.32	($55,872.29)	
	$0.34	($72,961.64)	
	$0.36	($90,050.99)	

Question: How sensitive are the financial projections to the assumption about the <u>growth rate in the number of stores</u>?

Answer: *The change in growth rate has more impact on the projection the longer the time horizon (e.g., bigger impact on year 9 vs. year 3).*
Questions:
1) *How does the Operating Income in Year 9 change from the base case (7% store growth) if the growth rate were 8%?*
2) *6%?*
3) *What if I asked about Operating Income in Year 3? (How much does it change if growth rate were 8% instead of 7%? And 6% instead of 7%?)*
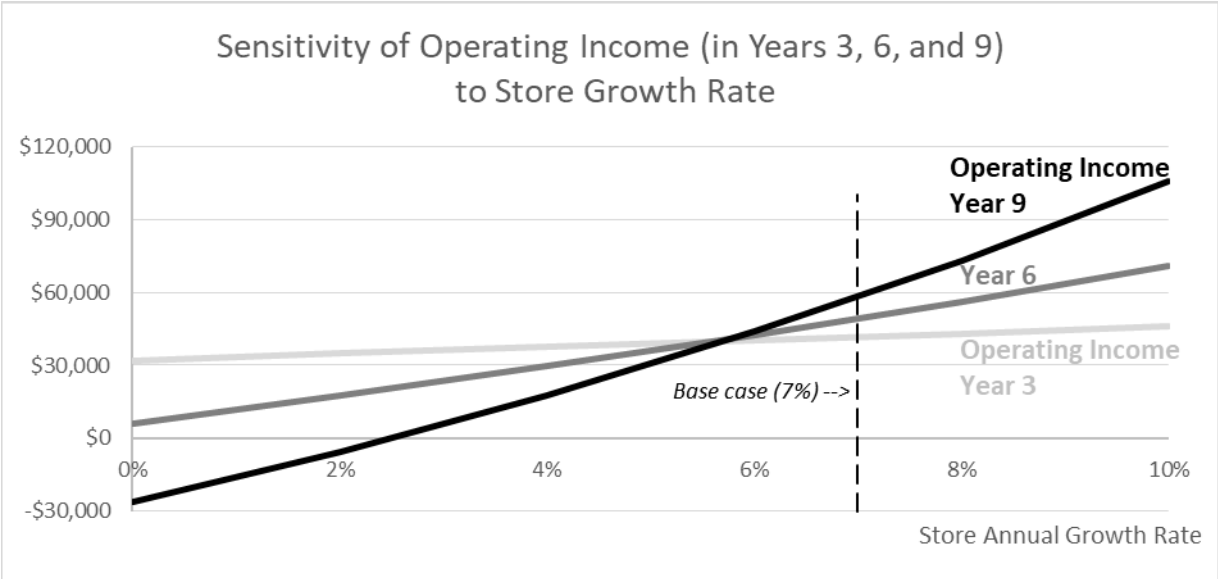
Challenge question: can you make a graph like this? A Data Table can have multiple columns. Put a cell reference to different outputs you want to track in each column. In this question, the outputs you are tracking are the cells containing Operating Income for Years 3, 6, and 9.