

## Module 1 - Excel Intro

### Background

- Some student entrepreneurs are considering starting a business where parents subscribe to “good-for-you” care packages for their college students. The entrepreneurs have two decisions to make.
    1. What kind of care package should they sell?  
They have narrowed it down to the following list from which they will select one:
      - Shaving and grooming supplies
      - Healthy foods: dried goods
      - Fresh produce
      - Pampering supplies
      - Room decorations
    2. What should the price point be?  
They are considering four price points from which they will select only one: \$15, \$25, \$35, and \$50.
  - The Excel workbook for this module consists of 5 tabs.
    1. The “Sales estimates” tab contains results of some market research that they did to determine how many subscriptions that they could sell of each product at each price point.
    2. The “Cost percentage estimates” tab provides the estimated costs given as a percentage of the price charged.
    3. \*More Excel Intro Exercises
    4. \*Even More Excel Intro Exercises
- \* *These tabs are to accompany the additional sections in this module provided for additional practice.*
- You will need to use the following relationships between quantities:
    1. *Revenue* is computed by multiplying the price per unit and the quantity sold.
    2. *Profit* is computed by subtracting the cost from the revenue.
  - The primary objective of this Module is to familiarize you with the critical skills of cell referencing and formula dragging. To become truly effective and efficient at these skills, you will need to understand the difference between *relative* and *absolute* cell referencing. To make this distinction, a \$ is used within the formula.  
The quiz for this Module will consist of problems where you must distinguish between formulas that correctly calculate specified values, especially when dragged. You will be required to pass this quiz in order to stay enrolled in this class.
  - To begin, watch the screencast [Rev Table Demo](#) for examples on how to use \$.
  - Now download the Excel file for this Module and use it to answer the following questions.

## Part 1: Revenue

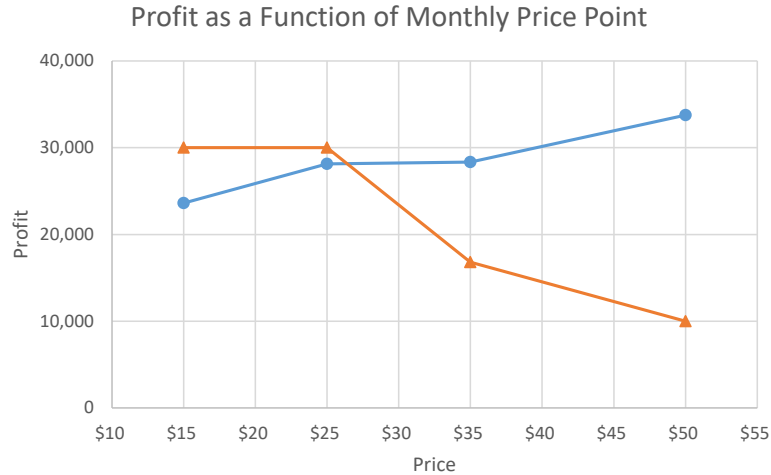
- 1) Which of the following formulas will correctly calculate the revenue for Shaving and Grooming Supplies at the \$50 price point? Select all correct answers.
  - a.  $=B5*B6$
  - b.  $=\$B\$5*\$B\$6$
  - c.  $=\$B5*\$B6$
  - d.  $=B\$5*B\$6$
  
- 2) Of the formulas given in the question above,
  - a. Which of them, if any, can be entered into cell B19 and dragged **down** to correctly calculate the revenue for the other services at the \$50 price point?
  
  - b. Which of them, if any, can be entered into cell B19 and dragged **to the right** to correctly calculate the revenue for Shaving and Grooming Supplies at the other price points?
  
- 3) Say you write the formula  $=B5*B6$  in cell B19. If you drag that formula down two cells,
  - a. What FORMULA will appear in cell B21?
  
  - b. What VALUE will appear in cell B21?
  
- 4) Write a formula for cell B19 that correctly calculates revenue, and can be dragged down and to the right, and still correctly calculate revenue for the other services and price points.
  
- 5) Which of the following formulas can be entered into cell B19 and will correctly calculate the revenue for Shaving and Grooming Supplies at the \$50 price point? Select all correct answers.
  - a.  $=B19$
  - b.  $=\$B\$19$
  - c.  $=A19*B18$
  - d.  $=A\$19*B\$18$
  - e.  $=B6*B18$
  - f.  $=B6*B\$18$
  
- 6) Which of the correct answers to the previous question can be dragged both down and to the right for correct revenue calculations?

- 7) Which of the following formulas will correctly calculate the revenue for Fresh Produce at the \$25 price point? There is exactly one correct answer.
- =B5\*B6
  - =A8\*D5
  - =D18\*D21
  - =D18\*D8
- 8) Can the answer to the previous question...
- Be dragged up and down to give the correct revenue calculations for the other services at the \$25 price point? If not, write a formula that can be dragged up and down.
  - Be dragged left and right to give the correct revenue calculations for the other price points for Fresh Produce? If not, write a formula that can be dragged left and right.

## Part 2: Profit

On the second tab in the workbook, you are given costs as a percentage of the price charged.

- 1) Which of the following formulas will correctly calculate the profit for Shaving and Grooming Supplies at the \$50 price point? Select all correct answers.
- =B29\*B6\*'Cost percentage estimates'!B2
  - =B29\*B6 - 'Cost percentage estimates'!B2
  - =B29\*B6 - B29\*B6\*'Cost percentage estimates'!B2
  - =B29\*B6 - B29\*'Cost percentage estimates'!B2
  - =B29\*B6 - B6\*'Cost percentage estimates'!B2
  - =B29\*B6\*(1 - 'Cost percentage estimates'!B2)
- 2) Write versions of the correct answers to the previous question that can be dragged both down and to the right for correct profit calculations.
- 3) The graph below shows profit as a function of price for two of the services. Which two services are they?



- Fresh Produce and Pampering Supplies
- Shaving and Grooming Supplies and Healthy Foods: Dried Goods
- Room Decorations and Fresh Produce
- Pampering Supplies and Healthy Foods: Dried Goods

### Part 3: Decisions

- 1) If the students were to offer the Fresh Produce service, which price point maximizes profit? How much is the profit for Fresh Produce at that price?
  
- 2) Which service and price point combination maximizes profit? How much is the profit for that combination?

## Selected Answers

### Part 1

- 1) All four of those formulas will give the revenue for Shaving and Grooming Supplies at the \$50 price point.
- 2) a) None of them. b) Answers a and d can be dragged to the right.
- 3) a)  $=B7*B8$  b) 3,000,000
- 4)  $=B5*B6$  and  $=B6*B5$  work. Other answers are possible.
- 5) Answers e and f give the right calculation.
- 6) Only answer f is draggable.
- 7) Answer d.
- 8) a) No. Here's one draggable version:  $=D18*D8$ . b) Yes.

### Part 2

- 1) Answers c and f give the right calculation.
- 2) Draggable versions:  
 For answer c):  $=B29*B6 - B29*B6*'Cost\ percentage\ estimates'!*B2$   
 For answer f):  $=B29*B6*(1 - 'Cost\ percentage\ estimates'!*B2)$
- 3) Answer d is correct.

### Part 3

- 1) \$50 for a monthly profit of \$25,000.
- 2) \$15 for Room Decorations results in (monthly) profit of \$45,000.

## More Excel Intro Exercises (For Retake 1)

For these exercises, make sure you have the file with the Monthly Sales Data for 10 products: the first one is Split Stick.

### Part 1: Revenue

- 1) Which of the following formulas will correctly calculate the revenue (retail price x units sold) for the product **Split Stick** for the month of **January**? There is exactly one correct answer.
  - a. =A:A\*E:E
  - b. =A\*E
  - c. =A4\*E3
  - d. =B4\*E4
  
- 2) Using the correct formula from the previous question,
  - a. If you enter that formula into cell E18, what VALUE shows in cell E18?
  
  - b. If you enter that formula into cell E18 and drag the formula down to cell E19,
    - i. What VALUE shows in cell E19?
    - ii. What FORMULA shows in cell E19?
    - iii. Is that the correct calculation for revenue for Bandits in January?
  
  - c. If you now drag the formula from cell E18 to the right to cell F18,
    - i. What VALUE shows in cell F18?
    - ii. What FORMULA shows in cell F18?
    - iii. Is that the correct calculation for revenue for Split Stick in February?
  
- 3) Which of the following formulas will correctly calculate the revenue (retail price x units sold) for the product **Converge** for the month of **April**? Select all correct answers.
  - a. =A8\*H3
  - b. =\$A\$8\*\$H\$3
  - c. =B8\*H8
  - d. =\$B\$8\*\$H\$8
  
- 4) Of the formulas given in the question above,
  - a. Which of them, if any, can be entered into cell H22 and dragged **up and down** to correctly calculate the revenue for the other products (besides Converge) for April?
  
  - b. Which of them, if any, can be entered into cell H22 and dragged **to the left and right** to correctly calculate the revenue for the product Converge for the other months?

- 5) Which of the following formulas will correctly calculate the revenue (retail price x units sold) for the product **Porter** for the month of **February**? Select all correct answers.
- $=B7 * F7$
  - $=\$B7 * \$F7$
  - $=B\$7 * \$F7$
  - $=\$B7 * F7$
- 6) Of the formulas given in the question above,
- Which of them, if any, can be entered into cell F21 and dragged **up and down** to correctly calculate the revenue for the other products (besides Porter) for February?
  - Which of them, if any, can be entered into cell F21 and dragged **to the left and right** to correctly calculate the revenue for the product Porter for the other months?

## Part 2: Profit

Note: profit is (Retail Price minus Production Cost) multiplied by Units Sold.

- Which of the following formulas will correctly calculate the **profit** for the product **Bandits** for **April**? Select all correct answers.
  - $=B5 * H5 - C5 * H5$
  - $=B5 * H5 + C5 * H5$
  - $=B5 * H5 * C5 * H5$
  - $=B5 - C5 * H5$
- What is another correct way to write the formula from the previous question?
- Write a formula to correctly calculate the profit for the product Split Stick for January.
- Starting in row 30 on the spreadsheet, there is a table set up for the profit calculations for all the products and all the months.
  - Enter the formula for profit for the product Split Stick for January into cell E32. (You wrote that formula in the previous question.)
    - What VALUE do you see in cell E32?
    - Is that the correct value?
  - Drag your formula from cell E32 down to cell E33.

- i. What VALUE shows in cell E33?
    - ii. What FORMULA shows in cell E33?
    - iii. Is that the correct calculation for profit for Bandits in January?
  - c. Drag your formula from cell E32 to the right to cell F32.
    - i. What VALUE shows in cell F32?
    - ii. What FORMULA shows in cell F32?
    - iii. Is that the correct calculation for profit for Split Stick in February?
  - d. Use these questions to check to see if your formula is giving the correct values for profit when you drag it down and to the right. Check the answers at the end to make sure you have the right values.
    - i. What VALUE for profit do you get for the product SOLO in November?
    - ii. What VALUE for profit do you get for the product Slice in May?
- 5) If you used the formula  $= (B4 - C4) * E4$  in E32, then your formula does not drag properly to the right. With that formula, the answer to Part 2, Question 4ciii is that the calculation is not correct.

Instead of  $= (B4 - C4) * E4$ , how can you write the formula for profit for the product Split Stick in January (in cell E32) so that you can drag it both down and to the right, and all the profit calculations are correct?

- 6) This is a graph of the monthly profit for one of the products. Which product?





- Split Stick
- Bandits
- Slimline
- Porter

**WRITING DRAGGABLE FORMULAS IS THE KEY THING YOU NEED TO BE ABLE TO UNDERSTAND AND TO DO TO PASS THE QUIZ.** You should completely understand, for every column and row reference in every formula, a) whether the \$ must be there to have the formula drag correctly, or b) whether it should not be there, or c) whether it doesn't make a difference. You will need to understand the use of \$ in cell references for every module in this entire course, and any serious use of Excel in the future.

## Answers

### Part 1

- 1) Answer d is correct.
- 2) a) \$140.00 (or 140, depending on formatting).  
 b) i) \$8,456.00    ii) =B5\*E5    iii) yes  
 c) i) \$224.66    ii) =C4\*F4    iii) no!
- 3) Answers c and d.
- 4) a. Answer c will correctly drag up and down but answer d will not.  
 b. Neither answer c nor answer d will correctly drag left and right.
- 5) All four answers will correctly calculate revenue for Porter for February.
- 6) a. Answers a, b, and d will correctly drag up and down but answer c will not.  
 b. Answer d is the only one that will correctly drag left and right.

### Part 2

- 1) Answer a is the only correct answer. Answer d is not correct.
- 2) There are many possible other ways to write the formula correctly. Answer d can be corrected by including parentheses: =(B5-C5)\*H5. Also, if you are just writing a formula in a single cell and not concerned about dragging, =\$B\$5\*\$H\$5 - \$C\$5\*\$H\$5 would also work. Make sure you understand why that will not give you the right calculation for other products or months if you drag it.
- 3) One correct answer: =(B4-C4)\*E4
- 4) a. i. and ii. The formula from the previous question gives the correct profit: \$106.54.  
 b. The answer you get here will depend on the formula you have in cell E32.  
 i. If you use the formula =(B4-C4)\*E4 in E32, when you drag that down to cell E33, you get a value of \$8,300.47.  
 ii. and a formula of =(B5-C5)\*E5.  
 iii. Yes, that is the correct calculation for profit for Bandits in January.  
 c. Like the previous part, the answer you get here will depend on the formula you have in cell E32.  
 i. If you use the formula =(B4-C4)\*E4 in E32, when you drag that to the right to cell F32, you get a value of \$224.66.  
 ii. And a formula of =(C4-D4)\*F4.  
 iii. No, that is NOT the correct calculation for profit for Split Stick. (The correct value is \$715.34.)  
 d. i. The profit for SOLO in November is \$44,143.34.  
 ii. The profit for Slice in May is \$9,145.10.
- 5) Hint: you need to add two \$s to =(B4-C4)\*E4. You can check your answer by entering your answer into cell E32 and dragging across the table and down and making sure you get the values given in the previous question (SOLO November and Slice May).
- 6) The answer is c (Slimline).

## Even More Excel Intro Exercises (For Retake 2)

For these exercises, you need the file with the tab called Time Use. The U.S. Bureau of Labor Statistics (BLS) conducts an annual Time Use Survey to understand how Americans use their time, and this data set comes from that survey.

The first rows of data are show below. Each **Activity** is in a **Category**, and you have a spreadsheet that shows the average hours per day for each activity and for each category, for the total population and for men and women separately.

|    | A                        | B                                     | C | D                                     | E    | F     | G | H   | I    | J     |
|----|--------------------------|---------------------------------------|---|---------------------------------------|------|-------|---|---|------|-------|
| 4  | Category                 | Activity                              |   | Average hours per day on the Activity |      |       |   | Average hours per day spent on the Category |      |       |
| 5  |                          |                                       |   | Total                                 | Men  | Women |   | Total                                       | Men  | Women |
| 6  | Personal care activities | Sleeping                              |   | 8.80                                  | 8.69 | 8.90  |   | 9.59  | 9.33 | 9.83  |
| 7  | Personal care activities | Grooming                              |   | 0.68                                  | 0.55 | 0.81  |   | 9.59  | 9.33 | 9.83  |
| 8  | Personal care activities | Health-related self care              |   | 0.08                                  | 0.06 | 0.10  |   | 9.59  | 9.33 | 9.83  |
| 9  | Personal care activities | Personal activities                   |   | 0.01                                  | 0.01 | 0.00  |   | 9.59  | 9.33 | 9.83  |
| 10 | Personal care activities | Travel related to personal care       |   | 0.02                                  | 0.02 | 0.02  |   | 9.59  | 9.33 | 9.83  |
| 11 | Eating and drinking      | Eating and drinking                   |   | 1.07                                  | 1.10 | 1.04  |   | 1.17  | 1.21 | 1.13  |
| 12 | Eating and drinking      | Travel related to eating and drinking |   | 0.10                                  | 0.11 | 0.09  |   | 1.17  | 1.21 | 1.13  |
| 13 | Household activities     | Housework                             |   | 0.55                                  | 0.27 | 0.82  |   | 1.79  | 1.37 | 2.14  |
| 14 | Household activities     | Food preparation and cleanup          |   | 0.59                                  | 0.34 | 0.82  |   | 1.79  | 1.37 | 2.14  |

### Part 1: Fraction of the day spent on each Activity

- 1) Which of the following formulas will correctly calculate the fraction of the day that men spent sleeping? There is exactly one correct answer.
  - a. =E6/M2
  - b. =L2/E6
  - c. =E5/I5
  - d. =L2/E5
  
- 2) Using the correct formula from the previous question,
  - a. If you enter that formula into cell M6, what VALUE shows in cell M6?
  
  - b. If you enter that formula into cell M6 and drag the formula down to cell M7,
    - i. What VALUE shows in cell M7?
    - ii. What FORMULA shows in cell M7?
    - iii. Is that the correct calculation for the fraction of the day that men spent grooming?
  
  - c. If you now drag the formula from cell M6 to the right to cell N6,
    - i. What VALUE shows in cell N6?
    - ii. What FORMULA shows in cell N6?

- iii. Is that the correct calculation for the fraction of the day that women spent sleeping?
- 3) Which of the following formulas will correctly calculate the fraction of the day that women spent on lawn and garden care? Select all correct answers.
- =F15/M2
  - =F\$15/\$M\$2
  - =N5\*B15
  - =N\$5\*\$B\$15
- 4) Of the formulas given in the question above,
- Which of them, if any, can be entered into cell N15 and dragged **up and down** to correctly calculate the fraction of the day that women spent on the other activities (besides lawn and garden care)?
  - Which of them, if any, can be entered into cell N15 and dragged **to the left** to correctly calculate the fraction of the day that men spent on lawn and garden care?
- 5) Which of the following formulas will correctly calculate the fraction of the day that the total population spent on socializing, relaxing, and leisure (one of the activities)? Select all correct answers.
- =D45/\$M\$2
  - =\$D45/\$M2
  - =D45/M\$2
  - =D\$45/M2
- 6) Of the formulas given in the question above,
- Which of them, if any, can be entered into cell L45 and dragged **up and down** to correctly calculate the fraction of the day that the total population spent on the other activities (besides socializing, relaxing, and leisure)?
  - Which of them, if any, can be entered into cell L45 and dragged **to the right** to correctly calculate the fraction of the day that men and women spent on socializing, relaxing, and leisure?

## Part 2: Fraction of the Category hours spent on each Activity

In this part, we will look at the fraction of hours in each category were spent on each activity. For example, the sheet shows that men spent 9.33 hours on the category “Personal care activities.” Of those 9.33 hours, they spent 5.89% of them, or 0.55 hours, on the activity “Grooming.” (The 9.33 and 0.55 are given in the spreadsheet, and note that  $0.55/9.33$  is 0.0589.)

- 1) Which of the following formulas will correctly calculate the fraction of the hours that women spent on the activity “Grooming” out of all the hours they spent on the whole category “Personal care activities”? There is exactly one correct answer.
  - a. =F7/M2
  - b. =J7/M2
  - c. =N7/M2
  - d. =F7/J7
  - e. =N7/J7
  - f. =R7/J7
  
- 2) Which of the following formulas will correctly calculate the fraction of the hours that women spent on the activity “Health-related self care” out of all the hours they spent on the whole category “Personal care activities”? Select all correct answers.
  - a. =F8/J8
  - b. =\$F\$8/\$J\$8
  - c. =\$F8/\$J8
  - d. =F\$8/J\$8
  - e. =\$F\$8/J8
  - f. =F8/\$J\$8
  
- 3) Of the formulas given in the question above,
  - a. Which of them, if any, can be entered into cell R8 and dragged **up and down** to correctly calculate the fraction of a category’s hours that women spent on the other activities (besides health-related self care)?
  - b. Which of them, if any, can be entered into cell R8 and dragged **to the left** to correctly calculate the fraction of a category’s hours that men spent on health-related self care?
  - c. Which of them, if any, can be entered into cell R8 and dragged **both up and down and to the left** and still give the correct calculation?

- d. Are there any other variations of the formula, beyond the combinations in Question 2, that can be dragged both up and down and to the left and still give the correct calculation?

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## Answers

### Part 1

- 1) Answer a is correct.
- 2) a. 0.362  
b. i. #DIV/0!    ii. =E7/M3    iii. No. #DIV/0! is an error message: you are trying to divide by 0.  
c. i. #DIV/0!    ii. =F6/N2    iii. No. #DIV/0! is an error message: you are trying to divide by 0.
- 3) Answers a and b are correct.
- 4) a. Neither.  
b. Neither.
- 5) All four answers are correct.
- 6) a. Answers a and c can be dragged up and down and still give the correct calculation.  
b. Answer a can be dragged to the right and still give the correct calculation.

### Part 2

- 1) Answer d is correct.
- 2) All six answers are correct.
- 3) a. Answers a and c can be dragged up and down and still give the correct calculation.  
b. Answers a and d can be dragged to the left and still give the correct calculation.  
c. Answer a is the only one that can be dragged both directions and still give the correct calculation.  
d. No. =F8/J8 is the only one that is draggable all directions. You need both the row and column in both the numerator and the denominator to change as you drag.

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