

Excel – Budget 1

Two projects to practice basic Excel skills

Instructions:

Read through the set of learning objectives. This is what you should will know when you finish the lesson.

Complete every step in the assignment, in the order given. Do not skip steps.

When you have done all of the steps, fill out the Check for Understanding (CFU) form.

A completed CFU for every lesson, in-class and homework, is due to be turned in during your next class.

The CFU forms are not to be submitted by email.

Where there are differences between software versions, the instructions for Excel 2010 are in Black, for the **Mac are in green** and for **Excel 2013/2016** are in blue.

This table of sample formulas might be useful when you are asked to create formulas in your worksheet.

<u>Type of Formula:</u>	<u>Example</u>
1 Addition of Two Cells	= A2 + B3
2 Addition of a Constant	= B1 + 25
3 Subtraction of a Constant	= C1 – 10
4 Subtraction of a Cell	= B2 – B1
5 Multiplication by a Constant	= A3 * 20
6 Multiplication of Two Cells	= B3 * C3
7 Multiplication by a %	= A1 * .40 = A1 * 40%
8 Division by a Constant	= C1 / 5
9 Division by a Cell	= A2 / C2
10 Exponentiation (Squaring)	= B3 ^ 2
11 Exponentiation (Cubing)	= A3 ^ 3
12 Square Roots	= B3 ^ 0.5 = B3 ^ (1/2)
13 Increasing by a Percentage (4%)	= A1 + (A1 * .04) = A1 * 1.04 = A1 + (A1 * 4%) =A1 * 104 %

14 Decreasing by a Percentage (8%)

$$\begin{aligned} &= A1 * 0.92 \\ &= A1 - (A1 *.08) \\ &= A1 - (A1 * 8\%) \\ &= A1 * 92\% \end{aligned}$$

Summary of Key Points:

Use icons and shortcuts to format cells.

Enter formulas into cells.

Use the AutoFill handle to copy formulas into adjacent cells.

Use the AutoSum icon to add columns or rows of numbers.

Use a cell reference in a formula.

Fun Video [Java Juice](#)


For MAC users:

Video – for the MAC - Excel Basics <https://www.youtube.com/watch?v=kkNY1ysaOe0&spfreload=10>

Some standard PC keys are not available on the Mac keyboard:

The Mac's function keys work similarly to those on a Windows keyboard except that the default setting for the Mac requires you to hold down the **fn** key along with the function key. Under System Preferences > Keyboard you can check a box to change function key behavior to work like "standard function keys"

The shortcut menus on the Mac uses symbols for a few keys. For example, the Command key is shown as ⌘, the Control key as ^, and the option key as ⌥.

Windows Keys	Mac Equivalent	
Control	Command	
Home	fn arrow left	
End	fn arrow right	
Page Up	fn arrow up	
Page Down	fn arrow down	
Screen right	fn option arrow down	
Screen left	fn option arrow up	
Move to Last cell	fn control arrow right	
Move to first cell	fn control arrow left	
Delete	fn Delete	
Backspace	Delete	

Sales Forecast Project

For this assignment, you will create a Coffee Shop Sales Forecast for a six month period. Before you begin creating a worksheet, it is a good idea to create a drawing or rough outline of how you want it to look. As you work on the assignment, refer to this sample.

Java Juice Café - Sales Forecast

Prepared by: Your Name							
	January	February	March	April	May	June	Total
Food Sales							
Sandwiches	\$83,000	\$85,000	\$87,000	\$89,000	\$91,000	\$93,000	\$528,000
Soups	\$38,000	\$41,420	\$45,148	\$49,211	\$53,640	\$58,468	\$285,887
Desserts	\$44,000	\$46,200	\$48,510	\$50,936	\$53,482	\$56,156	\$299,284
Total Food Sales	\$165,000	\$172,620	\$180,658	\$189,147	\$198,122	\$207,624	\$1,113,171
Beverage Sales							
Coffee	\$68,000	\$70,040	\$72,141	\$74,305	\$76,535	\$78,831	\$439,852
Tea	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$180,000
Beer/Wine	\$24,000	\$23,280	\$22,582	\$21,904	\$21,247	\$20,610	\$133,622
Juice	\$10,000	\$11,500	\$13,225	\$15,209	\$17,490	\$20,114	\$87,537
Soft Drinks	\$14,000	\$16,500	\$19,000	\$21,500	\$24,000	\$26,500	\$121,500
Total Beverage Sales	\$146,000	\$151,320	\$156,948	\$162,918	\$169,272	\$176,054	\$962,512
Ingredient Costs							
Food Costs	\$49,500	\$51,786	\$54,197	\$56,744	\$59,437	\$62,287	\$333,951
Beverage Costs	\$21,900	\$22,698	\$23,542	\$24,438	\$25,391	\$26,408	\$144,377
Net Revenue	\$239,600	\$249,456	\$259,866	\$270,883	\$282,567	\$294,983	\$1,597,355

Directions:

1. Open a new Excel file. In this assignment, working in Sheet1, we will create the Sales Forecast shown above.

2. Put the cursor between the A and B column letters. Click and drag to double the width of column A.

Use the Merge and Center icon **[ALT H M]** in Excel 2013 **[ALT H M C]** to merge cells A1 to H1. Type "Java Juice Café - Sales Forecast" into the merged cell. Make the text bold with point 16 font.

Note: The instructions in Green are for MAC (Office 11) users. Select the cells that you wish to merge and then right click them. Then select format cells on the screen that pops up. Click on the Alignment tab and then check the box that says merge cells. When you go back to your spreadsheet, those cells should be merged.

3. Merge cells A2 and B2. Enter "Prepared by:" and your name, in the merged cell.

4. Enter the names of the months January to June in cells B3 to G3. Enter "Total" in cell H3. Center the cell contents in B3:H3 and apply a red font.

5. Add text to cells in cells A4 to A22, as shown in the sample picture at the top. Center the text.

6. For the labels Food Sales, Beverage Sales, and Ingredient Costs cells, change the font color to blue and add underlining.

7. For the Sandwiches, Soups, Desserts, Coffee, Tea, Beer/Wine, Juices, and Soft Drinks cells change the font color to light green.

8. For the food and the beverage categories, enter the numbers shown in the picture at the top as sales values for January in B5:B7 and in B11:B15. Leave the other cells in column B empty.

9. Format the cells in the range B5:H22 as Currency with no decimal places. **Note: Clicking on the \$ icon formats cells as Accounting style, not Currency style.**

Enter formulas in column C to show the change in sales values from January to February. Use cell references to refer to the values in column B. As you create each formula, use the AutoFill handle to copy the formula columns D through G. **If you need help with the formulas, look at the table at the top of the assignment!**

10. Row 5: Sales of Sandwiches sales will increase by \$2000 each month. Enter this formula into cell C5 to calculate the February Sales value.

11. Row 6: Sales of Soups will increase 9% each month. Enter a formula in C6 to calculate the February Sales value.

12. Row 7: Sales of Desserts will increase 5% each month. Enter a formula in C7 to calculate the February Sales value.

13. Use the AutoFill handle to select cells C4:C7. Drag to the right to copy the formulas into the range D5:G7.

14. Mouse over the range B5:H7. Click on the AutoSum icon to display the six-month totals

15. Row 11: Sales of Coffee will increase by 3% each month. Enter a formula in C11 to calculate the February Sales value.

16. Row 12: Sales of Tea will stay the same each month. Enter a formula in C12 to calculate the February Sales value.

17. Row 13: Sales of Beer/Wine will decrease by 3% per month. Enter a formula in C13 to calculate the February Sales value.

18. Row 14: Sales of Juices will increase by 15% each month. Enter a formula in C14 to calculate the February Sales value.

19. Row 15: Sales of Sodas will increase by \$2500 each month. Enter a formula in C15 to calculate the February Sales value.

20. Use the AutoFill handle to select cells C11:C15. Drag to the right to copy the formulas into the range D11:G15

21. Mouse over the range B11:H15. Click on the AutoSum icon to display the six-month totals

22. Use the AutoSum icon [ALT H U] in Excel 2013 [ALT H U S] to enter a formula in cell B8 to show the total of the range B5:B7. Copy the formula into the range C8:H8. To use AutoSum in Microsoft for Mac: select cell B8 and then click on formulas on the top (ribbon) bar. In the bar should now be a button that says AutoSum. Click it and then press Enter.

23. Use the AutoSum icon [ALT H U] in Excel 2013 [ALT H U S] (repeat previous steps on step 1 for AutoSum on Mac) to enter a formula in cell B16 to show the total of the range B11:B15. Copy the formula into the range C16:H16.

24. Enter a formula in cell B19 to show the January Food Sales total * 30%. Use a cell reference for the January Food Sales Total. Copy the formula into C19:G19.

25. Enter a formula in cell B20 to show the January Beverage Sales total * 15%. Use a cell reference for the January Beverage Sales Total. Copy the formula into C20:G20.

26. Enter a formula in cell B22 to calculate the Net Revenue. This will include the January totals for Food Sales, plus Beverage Sales, minus Food Costs, and minus Beverage Costs. Copy the formula into C22:G22.

27. Use the AutoSum icon [ALT H U] in Excel 2013 [ALT H U S] (repeat previous steps on step 1 for AutoSum on Mac) to insert formulas into column H. Show the total for each row (5 through 22) that contains numbers.

28. Right-click on the worksheet tab (Sheet1) and change the name of the worksheet to Sales.

Payroll Forecast Project

Prepare an estimate of daily payroll expenses for the Java Juice Cafe. The cafe is open 16 hours per day, Monday - Saturday, from 6 a.m. to 10 p.m. The manager works 8 hours per day and is paid \$40 per hour. Benefit costs (insurance and taxes) for all employees are estimated to add another 35% to the wage expenses.

	A	B	C	D	E	F
1	Job Title	Hours	Pay Rate	Wages	Benefits	Total
2	Manager	8	\$40.00	\$320	\$112	\$432
3	Baristas		\$	\$	\$	\$
4	Bussers		\$	\$	\$	\$
5	Cashiers		\$	\$	\$	\$

6	Cooks		\$	\$	\$	\$
7	Janitor	3	\$	\$	\$	\$
8			\$	\$	\$	\$
9			\$	\$	\$	\$
10	Totals:			\$	\$	\$
11						

29. Switch to Sheet2. (In newer versions of Excel you will need to add a new sheet. There is a button at the bottom of the worksheet to click on. It looks like a plus sign inside a circle.) Right-click on the worksheet tab (Sheet2) and change the name of the worksheet to Payroll. Enter the column headings as shown.

30. Enter job titles in column A: Manager, Baristas (drink preparers), Bussers (table cleaners), Cashiers, Cooks, and Janitor. Add a couple of additional employee categories. for example: Bartenders, Dishwashers, Hostess or Servers.

The café serves both food and drinks. It has 12 tables and can seat up to 48 customers at one time. The café is busiest during the first four hours each morning and for two more hours each night and will need extra staff during those hours.

Critical Thinking Piece: Estimate the total hours worked by employees performing work in their category during one 16-hour day. There is no single right answer; you are using your own judgment – it's *your* restaurant! Here are some examples to get you started.

- For cashiers there would be at least one person working each hour that the café is open, so the total hours would be at least 16. If you had any periods when you had more than one cashier working you would have to add those additional hours to the 16.
- For cooks, there might be 10 hours with one cook and 6 hours with 2 cooks, so the total would be $(10*1) + (6*2) = 22$ hours.
- Bussers would only work during busy hours so the total might be 6.
- Here is a table to get you started.

Java Juice - Staffing Guide - # Employees Per Hour							
	Period	Customers	Revenue	Baristas	Bussers	Cashiers	Cooks
1	6:00 am	58	\$ 626			1	
2	7:00 am	75	\$ 836			1	
3	8:00 am	82	\$ 910			1	
4	9:00 am	78	\$ 868			1	
5	10:00 am	70	\$ 774			1	
6	11:00 am	63	\$ 702			1	
7	12:00 pm	62	\$ 648			1	
8	1:00 pm	58	\$ 388			1	
9	2:00 pm	59	\$ 658			1	

10	3:00 pm	47	\$ 642			1	
11	4:00 pm	47	\$ 526			1	
12	5:00 pm	58	\$ 520			1	
13	6:00 pm	54	\$ 606			1	
14	7:00 pm	48	\$ 532			1	
15	8:00 pm	39	\$ 432			1	
16	9:00 pm	24	\$ 268			1	
Totals		922	\$10,256	0	0	16	0

31. In column B (in the Payroll worksheet) enter your estimates for the number of hours per job category.

32. In column C decide on an hourly pay rate for each job and enter the rates. Assume minimum wage is \$12.00 per hour.

33. In cell D2 enter a formula to find the wages for the manager by multiplying the pay rate times the number of hours. Use two cell references, not numbers, as the values in the formula.

34. In cell E2 enter a formula to find the benefits for the manager by multiplying the wages times 35 percent. Use a cell references for the wages and 35% as the value.

35. In cell F2 enter a formula to find the total wages for the manager by adding wages plus benefits. Use two cell references, not numbers, as the values in the formula.

36. Use the AutoFill handle to copy the formulas in cells D2, E2 and F2 into rows 3-9.

37. Switch to formulas view (Ctrl and ~) and notice how the row numbers in the cell references automatically changed. Switch back to the normal view (Ctrl and ~).

38. In row 10 use the AutoSum icon [ALT H U] in Excel 2013/16 [ALT H U S] to enter the total of columns D, E, and F.

39. Change the format of the numbers in the range C2:F10 into Currency Style. On the Ribbon bar, make sure you are in the home tab. Under the number section is where you change it from General to Currency.

40. Use the decrease decimals icon [ALT H 9] to change cells D2:F10 to show no decimal places. Each time you click it one numeral on the right is hidden. (The decimal values are still there, just hidden.)

41. Click on the centering icon [ALT H A C] to center the contents of the cells in the range B2:F10.

42. Use the borders icon [ALT H B] to add a thick box border to cell F10. Use the fill colors icon [ALT H H] to add a light yellow color to cell F10.

Benefit Costs

Our benefit cost was assumed to be 35% and we used that number in our formulas in column E. Let's create a table showing how we got that 35% number.

Benefits	Cost
Health Care	12 %
Holidays	1 %
Medicare	3 %
Retirement	1 %
SDI	1 %
Social Security	6 %
Unemployment Ins	3 %
Vacations	1 %
Workers Comp	7 %
Total	35 %

43. Enter this table into the Payroll worksheet, starting in cell A12.

44. Select the cells A12 and B12. Make the font bold [ALT H 1] and center the text horizontally [ALT H A C].

45. Select the cells in the range B13:B21. Center the numbers. [ALT H A C] Format the numbers in B13:B21 by clicking on the % icon [ALT H P]. Excel will multiply all your data by 100. This is a bug in Excel. To avoid this problem format cells as percent style before you enter numbers. Delete the numbers and enter them again. They should now appear correctly.

46. In cell B22 use the AutoSum icon [ALT H U] in Excel 2013/16 [ALT H U S] to find the total of cells B13:B21.

47. Save the file using the file-name Budget. We will be using this file for the next assignment.

Review – Fine Points

Instructions for the Check for Understanding (CFU) form.

A CFU form is turned in for every assignment.

Starting with the line for your name, copy and paste the CFU form into a Word document.

Fill in your name, date, section number

Circle (or indicate by highlighting) a Y or N response for each statement. I do not subtract points for No answers.

Below the list of Y/N statements, insert **ONE** screenshot of any part of your work. I just need to see something to prove that you did the assignment. I don't need to see all of the assignment. Resize the screenshot, if necessary, so both the form and graphic can fit on one page. The CFU form is due to be turned in during the next class session. I do not accept CFU's through email.

Name _____ Date _____ Section _____

Check for Understanding – Excel Budget 1

Y/N I can use icons and shortcuts to format cells.

Y/N I can enter formulas into cells.

Y/N I can use the AutoFill handle to copy formulas into adjacent cells.

Y/N I can use the AutoSum icon to add columns or rows of numbers.

Y/N I can use a cell reference in a formula.

Quiz

1. The keystroke command to switch between the regular view of the worksheet and the formula view is _____
2. What is the difference between currency style and accounting style in how numbers are displayed? _____
3. If I enter the value 5 into cell D7 and then change the format of the cell to percent style, what value will Excel display? _____
4. If I change the format of cell D8 to percent style, and then enter the value 5 into the cell, what value will Excel display? _____
5. If I highlight a range of cells with the mouse, where is the Autofill handle found?

Excel – Budget 2

In this assignment we will learn about some common problems with Excel formulas and how to fix them.

Instructions:

Read through the set of learning objectives. This is what you should know when you finish the lesson.

Complete every step in the assignment, in the order given. Do not skip steps.

When you have done all of the steps, fill out the Check for Understanding (CFU) form.

A completed CFU for every lesson, in-class and homework, is due to be turned in during your next class.

The CFU forms are not to be submitted by email.

Where there are differences between software versions, the instructions for Excel 2010 are in Black, for the Mac are in green and for Excel 2013 are in blue.

Summary of Key Points:

Use a cell reference instead of a constant in a formula.

Fix a multiplication formula which gives a value of zero

Use a dollar sign as part of a cell reference.

Fix a division formula that shows a #div/0! error message.

Write a cell reference to a cell in a different worksheet.

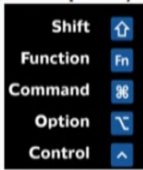
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Some standard PC keys are not available on the Mac keyboard:

The Mac's function keys work similarly to those on a Windows keyboard except that the default setting for the Mac requires you to hold down the **fn** key along with the function key. Under System Preferences > Keyboard you can check a box to change function key behavior to work like "standard function keys"

The shortcut menus on the Mac uses symbols for a few keys. For example, the Command key is shown as ⌘, the Control key as ^, and the option key as ⌥.

Windows Keys	Mac Equivalent	Mac Symbols
Control	Command	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; margin: 0;">Mac Keyboard-Shortcuts Help</p> <ul style="list-style-type: none"> • One of more confusing aspects of keyboard shortcuts on the Mac are the symbols you'll see for certain keys. For example, the Command key is abbreviated as ⌘, the Control key with ^, and the option key as ⌥. <div style="text-align: center; margin: 5px 0;">  </div> </div>
Home	fn arrow left	
End	fn arrow right	
Page Up	fn arrow up	
Page Down	fn arrow down	
Screen right	fn option arrow down	
Screen left	fn option arrow up	
Move to Last cell	fn control arrow right	
Move to first cell	fn control arrow left	
Delete	fn Delete	
Backspace	Delete	

Payroll Forecast Project, Part 2

1. Open the Budget file you created in the previous assignment.
2. In the previous assignment we renamed Sheet2 to Payroll. Select this worksheet; it should contain the payroll forecast.

	A	B	C	D	E	F
1	Job Title	Hours	Pay Rate	Wages	Benefits	Total
2	Manager	8	\$40.00	\$320	\$112	\$432
3	Baristas		\$	\$	\$	\$
4	Bussers		\$	\$	\$	\$
5	Cashiers		\$	\$	\$	\$
6	Cooks		\$	\$	\$	\$
7	Dishwashers		\$	\$	\$	\$
8	Janitor		\$	\$	\$	\$
9	Servers		\$	\$	\$	\$
10	Totals:			\$	\$	\$
11						
12				Six Months Sales		\$1,597,355
13				Six Months Payroll		
14				Net Profit		\$

3. Insert a new row 1 by right-clicking on the number 1 in the row numbers column and selecting Insert.

4. Merge cells A1 to F1. Enter the title “Java Juice Café - Payroll Forecast” into the merged cell. This is the title cell.

for MAC/EXCEL 2011 Select the cells that you wish to merge and then right click them. Then select format cells on the screen that pops up. Click on the Alignment tab and then check the box that says merge cells. When you go back to your spreadsheet, those cells should be merged.

for MAC/EXCEL 2011 -Alternative. If you are on the Home tab in the ribbon bar, there should be smaller sections and one named Alignment. There should be a drop box under it named merge and all you have to do is click and choose the appropriate merging style.

5. Use the “middle align” icon [ALT H A M] to format the title cell so the text is centered up and down.

for MAC/EXCEL 2011 To middle align your cell, select it and then go to the ribbon bar and again look under the Alignment tab. Under it to on the left are two rows of three icons. In the first row, select the middle icon and in the second row select the middle icon also.

6. Click just below the number 1 in the column of row numbers (on the left). Drag down to change the height of row 1 to make it about 50% taller.

7. Add a fill color to the title cell. Add a different color to cells A2:F2 and cells A13:B13. Add a third fill color to cells A3:A10 and cells A14:A23.

8. Apply “all borders” to the ranges A2:F11 and A13:B23.

for MAC/EXCEL 2011 In the Home tab of the ribbon under the font tab, there is a small drop box next to the underscore icon that shows a square. Click on that and a drop box will appear and you can select all borders.

9. Use the borders icon [ALT H B] In Excel 2013/16 use [ALT H B T] to apply a “thick box border” to the title cell.

for MAC/EXCEL 2011 Repeat previous step to access drop box for borders and then select thick border.

10. Merge cells D13 with E13, D14 with E14, and D15 with E15.

11. Enter “Six Months Sales” into cell D13, “Six Months Payroll” into cell D14, and “Net Profit” into cell D15. Widen columns D and E if you can’t see all of the text.

12. Click on cell F11. Copy the format of cell F10 into cells F13, F14, and F15. [ALT H F P]

13. In cell F13 enter the number 1,597,355. (Do not include the comma or decimal places) to show the Net Revenue from the Sales Forecast. You can see this value in cell H22 in that worksheet,

Now we will multiply the payroll-cost-per-day (cell F11) times 156 days to find the total payroll cost for six months.

Why 156? How many days will the café open be open each week? Six. How many weeks in six months? Twenty-six. So the café will be open 6 days times 26 weeks during the six month period.
 $6 * 26 = 156$ days.

14. Enter a formula in cell F14 to calculate your payroll cost for six months. Use a cell reference for the payroll-cost-per-day value.

15. To find the net profit subtract the six-month payroll cost from the six-month revenues. Enter a subtraction formula in cell F15, using two cell references for the Net Revenue and Payroll cost values.

16. What happens to your profit if you change the hours for one of the job categories? Try it.

17. Which cells are affected? Undo the change (Control and Z)

18. What happens to your profit if you change the pay rate for one of the job categories? Try it.

19. Which cells are affected? Undo the change (Control and Z)

How does the payroll cost for six months compare to your estimated revenues? A restaurant’s payroll would typically be between 25 and 35% of revenues. If the sales revenue is \$1,600,000 the payroll should be between \$400,000 and \$560,000. Your profit should be between \$1,040,000 and \$1,200,000.

20. If needed, make some changes to hours and pay rates to get the profit into the desired range of \$1,040,000 to \$1,200,000. If you are not seeing changes in cells F13, F14 and F15, check your formulas in those cells. They should be 1,597,355, =F11*156, and =F13-F14.

21. What happens if you change one of the items in the benefits table? Try it.

None of the values in the E column changed because when we created those formulas we used a constant number, 35%, to represent the benefit cost. The benefits costs can go up and down, so the 35% rate is not consistent. Whenever you use a number in a formula to represent a variable, your formula will give the wrong result when the value of the variable changes. We should have used a cell reference, B23, instead.

22. In cell E3 replace 35% with the cell reference B23 so the formula says = D3 * B23.

Did the total change in that cell and in cell F3? Fixing the formula should have fixed the problem in row 3. We still need to fix the other rows.

23. What happens if you copy the formula from E3 into the range E4:E10? Try it.

Did you get zeroes in those cells? What went wrong? Excel automatically adjusts the cell references when you copy a formula into a new row. The formula in cell E3 was = D3 * B23. When we copied it down it became = D4 * B24. The D4 part was what we wanted but we didn't want the B23 to change. We need to multiply everything in column E by B23. Cell B24 had nothing in it so Excel treated it like a zero.

24. We can fix the problem by editing each cell in E4:E10 to change all the incorrect row references back to B23. Do that now.

That is not too hard to do, there are only a few cells affected. But it would take a long time to fix this problem if we had a lot of cells that needed correcting. Fortunately there is an easier way to handle this. We can simply write the cell reference in our original formula in a special way that tells Excel to not adjust the row numbers in the cell reference. If you include a dollar sign as part of a cell reference the dollar sign tells Excel to not adjust whatever comes after it. The dollar sign means "don't change the ..."

For example = D3 * B\$23 would mean that when the formula is copied into other rows we want to change the row numbers in the first cell reference but we don't want to change the row number in the second one.

25. Try changing the formula in cell E3 to = D3 * B\$23 and then copy it into cells E4:E10.

Did you get numbers in those cells instead of zeroes?

26. Switch to formula view (Control and ~) and look at the formulas in cells E3 to E10. Did the dollar sign do its job?

27. Switch back into the regular view (Control and ~).

28. Try making a few changes to the numbers in the benefits table. Did the numbers change in the payroll section?

Sales Forecast Project, Part 2

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Prepared by: Your Name							
	January	February	March	April	May	June	Total
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Total Food Sales	\$165,000	\$172,620	\$180,658	\$189,147	\$198,122	\$207,624	\$1,113,171

<u>Beverage Sales</u>							
Coffee	\$68,000	\$70,040	\$72,141	\$74,305	\$76,535	\$78,831	\$439,852
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Beer/Wine	\$24,000	\$23,280	\$22,582	\$21,904	\$21,247	\$20,610	\$133,622
Juice	\$10,000	\$11,500	\$13,225	\$15,209	\$17,490	\$20,114	\$87,537
Soft Drinks	\$14,000	\$16,500	\$19,000	\$21,500	\$24,000	\$26,500	\$121,500
Total Beverage Sales	\$146,000	\$151,320	\$156,948	\$162,918	\$169,272	\$176,054	\$962,512
<u>Ingredient Costs</u>							
Food Costs	\$49,500	\$51,786	\$54,197	\$56,744	\$59,437	\$62,287	\$333,951
Beverage Costs	\$21,900	\$22,698	\$23,542	\$24,438	\$25,391	\$26,408	\$144,377
Net Revenue	\$239,600	\$249,456	\$259,866	\$270,883	\$282,567	\$294,983	\$1,597,355

Note: After you're finished your numbers may vary by a dollar or two from what I have due to rounding.

Let's practice using the dollar sign.

29. Select the worksheet that has the sales forecast.

30. We want to find the percentage that each category contributes to the total food sales.

31. Add the word Percent into cell i4. A percent is always a fraction, using the grand total as the denominator.

32. Format the cells in the ranges i5:i7 and i11:i15 as percent style. [ALT H P] Make sure to show two decimal places.

for MAC/EXCEL 2011 Select the cells in the ranges i5:i7 and i11:i15 and then right click and open the format cell box. Click on the number tab and then select the percentage button. When it opens make sure to change the decimal places to two decimals and then click ok.

33. In cell i5 enter the formula = H5 / H8. This will divide the category total in H5 by the grand total in H8.

34. Copy the formula in cell i5 down into cells i6 and i7.

What happened? Do you get the #DIV/0! Error message? That's because when you copied the formula in i5 into cells i6 and i7 Excel changed the row numbers in the H8 cell reference to H9 and H10. Those cells are empty so Excel treats them as zeroes. You can't divide anything by zero so we get an error message.

35. Edit the formula in cell i5 to add a dollar sign in front of the 8. (=H5 / H\$8). Now copy it down into cells i6 and i7.

What happened? Did you get numbers in the cells? You should be ok now.

36. Click on cell i8 and then use the AutoSum icon [ALT H U] in Excel 2013/16 [ALT H U S] for MAC/EXCEL 2011 or the shortcut [Command+Shift+T] to show the total of cells i5, i6 and i7. Does it

show 100%? It should.

37. Try entering the number 200 into cell i5. Did the value in cell i8 change? If it did your formula is working correctly.

38. Undo the change by pressing Control and Z so cell i8 goes back to showing 100%.

39. Copy the formula from i7 into i8.

Does the value in i8 still show 100%? The formula in cell i8 is now = H8 / H\$8. A number divided by itself is always going to equal 100%. The formula is not actually adding up the values in i5 to i7, it just looks like it.

40. Try entering the number 200 into cell i5. Did the value in cell i8 change?

41. Undo the two changes you just made.

Now try it on your own.

42. Enter a formula in cell i11 to find the percentage for the first Beverage Sales category. Include dollar signs where needed so you can copy the formula into cells i12 to i15.

43. Copy the formula into cells i12 to i15.

44. Enter a Sum function to cell i16 to check that the percentages add up to 100%.

Now take a look at the food ingredient costs formula in cell B19. Does it say = B8 * 30%?

We used 30% as the percentage of the revenue that went to pay for the ingredients needed to make the food. The cost of the ingredients vary from month to month so we made a mistake when we used 30% as part of the formula. We will get wrong answers. Variables should always be entered as cell references. Let's fix that now.

45. In cell A25 enter the label Food Cost %. In cell A26 enter the label Beverage Cost %.

46. Format cells B25 and B26 as percents. In cell B25 enter 30 and in B26 enter 15.

47. In cell B19 change the formula to = B8 * B25. Did it work?

48. Copy the formula from B19 into the range C19:G19.

Did it work or did you get zeroes? This is due to a similar problem as the one we ran into when we copied the percent formulas into new rows. This time we are copying formulas into new columns and Excel is adjusting the letter part of the cell reference. The formula changed from = B8 * B25 into = C8 * C25, then into = D8 * D25 and so on.

Why did we get zeroes? The adjusted formulas in C19:G19 are multiplying by cells in the range C25:G25. These cells are empty so Excel treats them as zeroes. Multiply anything by zero and you get zero as the result.

To avoid this problem we need to write our formula in B19 in such a way that the second cell reference, B25, stays the same every time we copy the formula. We wanted =B8 * B25 to change into = C8 * B25, then = D8 * B25 and so on. To fix this we can use a dollar sign to tell Excel not to change the B in the second cell reference.

49. Change the formula in B19 to = B8 * \$B25. Change the formula in B20 to = B16 * \$B26.

50. Copy the revised formulas into the range C19:G20.

Now take a look at our grand total, net sales revenue in cell H22. That value is 800,080. We used a slightly different value, 800000, in cell F13 of the Payroll forecast. We could enter 800080 in cell F13 of the Payroll sheet to make them match, but the next time we make changes to the sales forecast the revenue number in the payroll forecast will be wrong again. We want those numbers to always match. We can fix this problem by writing a formula in cell F13 in the Payroll sheet that copies the number from cell H22 in the sales forecast worksheet and shows it in the Payroll sheet.

How? To write a formula referring to a cell in another worksheet, start with the name of the worksheet, followed by an exclamation mark, and then type the cell coordinates.

51. In the Payroll worksheet click on cell F13 and type = Sales!H22.

Save the file using the file-name Budget2. You will be building charts based on these worksheets.

Review – Fine Points

Instructions for the Check for Understanding (CFU) form.

A CFU form is turned in for every assignment.

Starting with the line for your name, copy and paste the CFU form into a Word document.

Fill in your name, date, section number

Circle (or indicate by highlighting) a Y or N response for each statement. I do not subtract points for No answers.

Below the list of Y/N statements, insert **ONE** screenshot of any part of your work. I just need to see something to prove that you did the assignment. I don't need to see all of the assignment. Resize the screenshot, if necessary, so both the form and graphic can fit on one page.

A copy of the CFU is due to be turned in during the next class session. I do not accept CFU's through email.

Name _____ Date _____ Section _____

Check for Understanding – Excel Budget 2

Y/N I can use a cell reference instead of a constant in a formula.

Y/N I can fix a multiplication formula which gives a value of zero.

Y/N I can use a dollar sign as part of a cell reference.

Y/N I can fix a division formula that shows a #DIV/0! error message.

Y/N I can write a cell reference to a cell in a different worksheet.

Quiz

1. Give three examples of typical errors people make when using Excel

a. _____

b. _____

c. _____

2. When would you see a #DIV/0 error message?
