ASSESS

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PRACTICE

Review Assignments

Data File needed for the Review Assignments: Mothers.xlsx

Ken and his wife, Sally, are expanding the business, changing its name to Fit Fathers and Mothers Inc., and adding fitness classes for mothers with a special emphasis on pregnant women. The fitness equations for women are different from those for men. Ken and Sally want you to create a workbook similar to the one you created for fathers, but focused on the fitness needs of women. Sally also wants you to calculate the total fat burned in the course of completing the workout schedule. She has already designed much of the workbook's contents, but she needs you to add the formulas and functions. Complete the following:

1. Open the **Mothers** workbook located in the Excel3 ▸ Review folder included with your Data Files, and then save the workbook as **Mothers Fitness** in the location specified by your instructor.
2. In the Documentation sheet, enter your name and the date.
3. Go to the Fitness Analysis worksheet. In the range C8:C15, enter the personal data for **Dorothy Young**. Her activity level is **Moderate**, she is **38** years old, **152** pounds, **64** inches tall, with a **33**-inch waist, **35**-inch hips, and a **14**-inch neck.
4. In cell C20, enter a formula to calculate Dorothy's body mass index based on the equation

   $BMI = 703w/h^2$

   where w is the weight in pounds and h is the height in inches. Display the formula results with one decimal place.
5. In cell C22, enter a formula to calculate the resting metabolism rate for women based on the equation

   $BMR = 4.338w + 4.698h - 4.68a + 655$

   where w is the weight in pounds, h is the height in inches, and a is the age in years. Display the formula results with no decimal places.
6. In cell C23, enter a formula using the VLOOKUP function to calculate the active BMR based on the equation

   Active BMR = *Activity Factor* × *BMR*

   where *Activity Factor* is an exact match lookup for the value in the range O8:P12 that corresponds to the activity level entered in cell C9, and *BMR* is the value in cell C22. Display the formula results with no decimal places.
7. In cell K22, enter a formula using an IF function to calculate the total minutes for the first workout that displays a blank cell if Dorothy did not attend a workout that day.
8. Use AuotFill to copy the formula you entered in cell K22 to the range K23:K44 to calculate the total minutes for each workout.
9. In cell L22, enter a formula to calculate the calories burned at the first workout based on the equation

   $$\text{Calories} = \frac{METS \times w \times t}{125.7143}$$

   where *METS* is the metabolic factor for the exercise, w is the client's weight, and t is the exercise time. Use the METS value located in cell P19, the weight value located in cell C11, and the time value located in the corresponding cell in column K. Be sure to use an absolute reference for both weight and METS.

10. Edit the formula you entered in cell L22 to be included as part of an IF function that returns a blank cell if Dorothy did not attend the workout that day. Display the formula results with one decimal place.
11. Use AutoFill to copy the formula you entered in cell L22 to the range L23:L44 to calculate the calories burned at each workout.
12. In the range M22:M44, use the Quick Analysis tool to calculate a column running total of the calories burned in the range L22:L44. Display the formula results with two decimal places.
13. Complete the exercise statistics in the range G14:K18 by entering formulas calculating the sum, average, median, maximum, and minimum values of the exercise times, and calories burned values from the workout log. Display the averages and the calories burned statistics with one decimal place.
14. In cell G2, use a function to display the current date whenever the workbook is opened.
15. In cell F22, enter a formula to reference the start date entered in cell G7.
16. In the range F23:F44, use a function to increase the value of the date in the previous row by 1 workday. Format the formula results with the Short Date format.
17. In cell G8, enter a formula to display the ending date entered in cell F44.
18. In cell G9, enter a formula to count the number of days included in the range F22:F44.
19. In cell G10, enter a formula to count the number of attended workouts as indicated in the range G22:G44.
20. In cell G11, enter a formula to calculate the difference between the number of scheduled workouts and the number of attended workouts. Save the workbook.
21. Use Goal Seek to determine the weight Dorothy must attain to reach a body mass index of 22.
22. Save the revised workbook as **Mothers Fitness Goal**, and then close the workbook.

APPLY

Case Problem 1

Data File needed for this Case Problem: Hernandez.xlsx

Hernandez Family Juan and Olivia Hernandez are a recently married couple in Fort Wayne, Indiana. Juan is currently in graduate school and Olivia is the manager at a local bakery. They want to use Excel to help manage their family budget, but they need help setting up the formulas and functions to project their monthly expenses and help them meet their financial goals. Complete the following:

1. Open the **Hernandez** workbook located in the Excel3 ▸ Case1 folder included with your Data Files, and then save the workbook as **Hernandez Budget** in the location specified by your instructor.
2. In the Documentation sheet, enter your name and the date.
3. Go to the Budget worksheet. In cell B7, calculate the couple's total monthly income.
4. In row 23, use AutoFill to replace the numbers 1 through 12 with the month abbreviations **Jan** through **Dec**.
5. In rows 24 and 25, enter the couple's monthly income by referencing the monthly income estimates in cells B5 and B6. Use an absolute cell reference.
6. In row 26, calculate the couple's monthly income.
7. In row 37, enter formulas to calculate the total estimated expenses for each month.
8. In row 38, calculate each month's net cash flow, which is equal to the total income minus the total expenses.
9. In row 39, calculate the running total of the net cash flow so that Olivia and Juan can see how their net cash flow changes as the year progresses.
10. In the range B10:B19, calculate the average monthly expenses by category based on the values previously entered in rows 27 through 36.
11. In cell B20, calculate the total average monthly expenses.

12. The couple currently has $7,350 in their savings account. Each month the couple will either take money out of their savings account or deposit money. In row 41, calculate the end-of-month balance in their savings account by adding the value in cell E5 to the running total values of the net cash flow in row 39. Use an absolute cell reference for cell E5.
13. In cell E6, enter a formula to display the value of the savings balance at the end of December.
14. Juan and Olivia would like to have $15,000 in their savings account by the end of the year. Olivia is planning to ask for a raise at her job. Use Goal Seek to determine the value of cell B6 that will achieve a final savings balance of $15,000.
15. Save and close the workbook.

CHALLENGE

Case Problem 2

Data File needed for this Case Problem: Econ.xlsx

Introduction to Economics 102 Alice Keyes teaches Introduction to Economics 102 at Mountain View Business School in Huntington, West Virginia. She wants to use Excel to track the grades from her class. Alice has already entered the homework, quiz, and final exam scores for all of her students in a workbook, and she has asked you to set up the formulas and functions for her.

You will calculate each student's final average based on his or her homework score, quiz scores, and final exam. Homework counts for 20 percent of the student's final grade. The first two quizzes count for 10 percent each. The second two quizzes count for 15 percent each. The final exam counts for 30 percent of the final grade.

You will also calculate each student's rank in the class. The rank will display which student placed first in terms of his or her overall score, which student placed second, and so forth. Ranks are calculated using the function

```
RANK(number, ref, [order=0])
```

where *number* is the value to be ranked, *ref* is a reference to the cell range containing the values against which the ranking is done, and *order* is an optional argument that specifies whether to rank in descending order or ascending order. The default *order* value is 0 to rank the values in descending order.

Finally, you will create formulas that will look up information on a particular student based on that student's ID so Alice doesn't have to scroll through the complete class roster to find a particular student. Complete the following:

1. Open the **Econ** workbook located in the Excel3 ▸ Case2 folder included with your Data Files, and then save the workbook as **Econ Grades** in the location specified by your instructor.
2. In the Documentation sheet, enter your name and the date.
3. Go to the Grade Book worksheet. In cell B5, count the number of student IDs in the range A22:A57.

Explore 4. Cells C15 through H15 contain the weights assigned to each assignment, quiz, or exam. In cell J22, calculate the weighted average of the first student's scores by entering a formula that multiplies each score by its corresponding weight and adds the resulting products.

5. Edit the formula in cell J22, changing the references to the weights in cells C15 through H15 from relative references to absolute references.
6. Use AutoFill to copy the formula from cell J22 into the range J23:J57.

Explore 7. In cell K22, use the RANK function to calculate how the first student compares to the other students in the class. Use the weighted average from cell J22 for the *number* argument and the range of weighted averages in the cell range $J$22:$J$57 for the *ref* argument. You do not need to specify a value for the *order* argument.

8. Use AutoFill to copy the formula you entered in cell K22 into the range K23:K57.
9. In the range C16:H18, calculate the class average, minimum, and maximum for each of the six grading components (homework, quizzes, and final exam).
10. In cell B8, enter the student ID **14858**.

Explore 11. Using the VLOOKUP function with an exact match and the student data table in the range A22:K57, retrieve the first name, last name, weighted average, and class rank for student 14858 in the range B9:B12. Use an absolute reference to the lookup table. Note that the first name is found in the third column of the student data table, the last name is found in the second column, the weighted average is found in the tenth column, and the class rank is found in the eleventh column.

12. Brenda Dunford missed the final exam and will be taking a make-up exam. She wants to know what score she would need on the final exam to achieve an overall weighted average of 90. Use Goal Seek to calculate what final exam score Brenda needs to result in a weighted average of 90.
13. Save and close the workbook.

CHALLENGE

Case Problem 3

Data File needed for this Case Problem: Homes.xlsx

Homes of Dreams Larry Helt is a carpenter and a woodcrafter in Coventry, Rhode Island, who loves to design and build custom dollhouses. He started his business, Homes of Dreams, a few years ago and it has expanded into a very profitable sideline to his ongoing carpentry work. Larry wants to create a shipping form that will calculate the cost for the purchased items, including taxes, shipping, and handling. Larry already designed the worksheet, which includes a table of shipping rates, shipping surcharges, and items sold by Homes of Dreams. He asks you to complete the worksheet. Complete the following:

1. Open the **Homes** workbook located in the Excel3 ▸ Case3 folder included with your Data Files, and then save the workbook as **Homes of Dreams** in the location specified by your instructor.
2. In the Documentation sheet, enter your name and the date.
3. Go to the Order Form worksheet.
4. In cell B21, enter the Item ID **DH007**.
5. In cell C21, enter the VLOOKUP function with an exact match to return the name of the item referenced in cell B21. Reference the lookup table in the range M4:O50 using an absolute cell reference. Return the value from the second column of the table.
6. In cell E21, enter the VLOOKUP function with an exact match to return the price of the item referenced in cell B21. Use an absolute reference to the lookup table in the range M4:O50. Return the value from the third column of the table.
7. In cell F21, enter **1** as the quantity of the item ordered.
8. In cell G21, calculate the price of the item multiplied by the quantity ordered.

Explore 9. Revise your formulas in cells C21, E21, and G21, nesting them within an IF formula. For each cell, test whether the value of cell B21 is not equal to "" (a blank). If it is not, return the value of the VLOOKUP function in cells C21 and E21 and the calculated value in cell G21. Otherwise, those cells should return a blank ("") value.

10. Use AutoFill to copy the formulas in cells C21, E21, and G21 through row 30 in the order items table.
11. In row 22, enter **BD002** as the Item ID and **3** as the quantity of items ordered. Verify that the formulas you created automatically enter the name, price, and charge for the item.
12. In rows 23 through 25, enter **1** order for item **BH003**, **1** order for item **DR002**, and **1** order for item **KR009**.
13. In cell G32, calculate the sum of the item charges from all possible orders.
14. In cell G33, calculate the sales tax on the order, which is equal to the subtotal multiplied by the tax rate (entered in cell J9).
15. In cell C15, enter a function to insert the current date whenever the workbook is opened.
16. In cell C16, enter **3 Day** as the type of delivery for this order.