Name_____

Extension
1.3 Exponents in Excel

1. Microsoft Excel is a spreadsheet program that is widely used in the business world and makes for a **great** calculator. It is especially useful to me because I can cut and paste data and easily. If you have Microsoft Excel on your computer, open it now.

2. Exponents can be entered into Excel using the function: =POWER(x,y). x is the base and y is the exponent.
>   Type or copy the following into cell B2: =POWER(2,3)
>   Mash the "Enter" button on your keyboard.
>   What is the result?

3. Let's try a couple more. You won't need to retype the whole function, just replace the base and exponent and hit enter. =POWER(4,4)

4. =POWER(5,4)

5. Now, we need to make our column bigger for a huge answer!
>   1. Right Click the B so that column B is highlighted and a submenu appears.
>   2. Choose **column width**
>   3. Type 50 and press OK.

6. Enter =POWER(2,30)
Now, right click the cell, choose copy and paste the answer into the answer box below!

7. We need to get commas into the number so it will be easy to read.
>   1. Right click the cell B2 and choose **format cells**
>   2. Choose the number tab
>   3. Select number
>   4. Change the decimal places to 0
>   5. Click the check box to use a separator.
>   6. Click "Ok"

8. Now we have our periods separated by commas and can easily read one billion, seventy three million, seven hundred forty-one thousand, eight hundred twenty-four!
Let's try =POWER(16,9)

9. Mr. Mitchell says you may use Excel to do your homework tonight!

Extension
1.7 Finding Patterns with Microsoft Excel

1. Microsoft Excel is a spreadsheet program that is widely used in the business world and makes for a **great** calculator. It is especially useful to me because I can cut and paste data and easily.

2. If you look on the left side of the window, you see that the rows are numbered. We can use these numbers to tell us how many "terms" we have made.

3. We will use columns A and B for the terms. Let's enter the following pattern into column A. (use the enter key to quickly move **down** the column) **{2, 4, 8, 16, 32}**

4. In column B, we will repeat the pattern but not use the first term. Start in cell B1 and type... 4, 8, 16, 32.

5. Now we will use columns C and D to identify the pattern. To go from 2 to 4 you can add 2 or multiply by 2, so let's type 2 in cell C1 (press enter).

6. Click cell D1

	A	B
1	2	4
2	4	8
3	8	16
4	16	32
5	32	
6		

      press **=**

      click cell A1

      press *

      click cell C1

      [press enter]

7. Cell D1 now says 4 and that agrees with B1 so we are on the way to finding a pattern. We will use the fill down method to copy the pattern.

8. Click and drag so that you highlight cells C1, D1 and down to C10, D10.

      Click Edit; Fill; Down or press [**control D**]

9. The pattern in column D, agrees with Column B so we know that we have the right answers. The pattern for this sequence is the previous number * 2. Let's use excel to complete the work.

10. Click cell A6

      type =

      click cell A5

      type *2

      [press enter]

11. Now we will fill down the answers.

      Click cell A6 and drag until you highlight through A15.

      Fill Down [**control D**]

      What is the 13th term in this sequence?

      _____

Extension

12. Click the "**select all**" square and mash delete.

13. Put the following pattern into column A. - - - **{3, 4, 12, 13, 39, 40}**

14. In column B we will type 4, 12, 13, 39, 40

15. The pattern looks like it is + 1 , * 3 , + 1 , * 3

    Let's put 1, 3, 1, 3, 1, 3 into column C.

16. Now in cell D1

    type =

    click cell A1

    type + 1

    [press enter]

17. We can't use fill down, because the pattern isn't the same.

    In cell D2 type =

    click cell A2

    type *3

    [press enter]

18. Highlight cells D1 and D2

    Right click

    choose copy

19. **Right** click cell D3 and paste

    Right click cell D5 and paste

    Right click cell D7 and paste

    Right click cell D9 and paste.

20. Let's use the answers in column D to continue the pattern in column A.

    Click cell A7

    type =

    click cell D6

    [press enter]

    What is the new number in cell D7? _____

21. Good, now let's use fill down in column A –

    click cell A7 and highlight down through A20.

    press [**control D**]

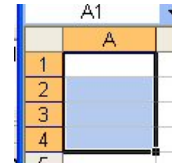22. Now copy cells D1 through D10

    Right click cell D11 and paste.

    What is the 17th term in this sequence? _____

Extension
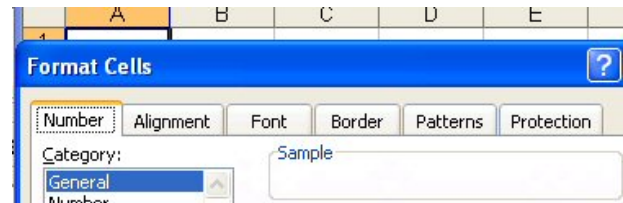## 4.6 Use Excel to Order Fractions

1. Open Excel

2. First we will need to tell Excel that we will be entering fractions.

3. Highlight Cells A1 through D1 by clicking cell A1 and dragging to D1 without letting go of the mouse button.

4. Choose "Format" from the menu bar.

5. Click Cells.

      A new box appeared with more choices.

6. Make sure that the "**Number**" tab is selected

7. Choose "**Fraction**"

8. Then choose "**up to three digits**"

9. Click OK

      When you have completed the task you will be looking at the 4 highlighted cells.

10. Let's enter the data! You are asked to put $^1/_3$, $^1/_2$ and $^4/_7$ in order from greatest to least.

      Type 1/3 into cell A1 - hit enter

      Type 1/2 into cell B1 - hit enter

      Type 4/7 into cell C1 - hit enter

11. Now to order the fractions, highlight the data you want to work with.

      Click cell A1 and drag to C1 so that the 3 fractions are highlighted.

12. Choose **Data** from the Menu bar.

13. Choose **Sort** from the submenu

14. Your choices are

      Ascending (going up from the bottom) or

      Descending (going down from the top)

      We were told to order from greatest to least so we will be going down...(descending)
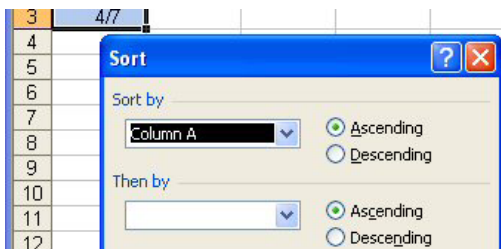
15. Click the **radio button** for descending.

16. Choose OK

17. Your fractions are now sorted from greatest to least!

18. Which fraction is the greatest? (cell A1)

Repeat steps 10 – 16 for any other fractions you want to order!

Extension 4.9
Use Excel to Multiply Fractions

Today we will be using Microsoft Excel to multiply fractions by whole numbers.

> Note – when typing into Excel – you don't need to use spaces.
>
> I use spaces here to help you see what to type.

We will complete tonight's homework so first we will need to "number our paper".

- ✓ Type "**1**" in cell A1 and press "**enter**"
- ✓ There are 24 problems on tonight's homework.
- ✓ We will write an equation in cell A2 then use fill down to let Excel number our paper.
  - ○ In cell A2 type "**+ a1 + 1**" and press enter.
  - ○ Highlight cells A2 through A24 by clicking (and holding) A2 and dragging the mouse down to A24. Choose "**edit**" from the menu bar and choose "**fill down**"
  - ○ You could also press Control and D to use a keyboard shortcut.
  - ○ I don't like the way the numbers crash against the right edge of the cells.
    - ▪ **Click A** (so that all of column A is highlighted)
    - ▪ Choose "**Format**" - "**cells**" - "**alignment**" tab - the drop down arrow for "**horizontal**" - "**left indent**" and change the "**0**" in the "**indent**" box to "**2**".
    - ▪ Choose "**ok**" to finish the task.

Now it is time to complete our homework.

We need our answers to be fractions, so we need to tell Excel that we want fraction answers.

- ✓ Click "**B**" to highlight all of column B.
  - ○ From the menu bar, choose "**format**" - "**cells**"
  - ○ Select the "**number**" tab - then "**fraction**" - "**up to 3 digits**"
    - ▪ Don't panic if you notice no change.
    - ▪ We will soon see if you correctly formatted the column.
- ✓ In cell B1 type the first problem of tonight's homework - **be sure to start with a plus sign!**
  - ○ "**+ 5 * 1/25**" press [**enter**]
    - ▪ the answer 1/5 will appear in cell B1.
    - ▪ (if 0.2 appears you need to repeat the formatting from the previous step.
- ✓ Let's try cell B2
  - ○ Type "**+ 7 * 2/21**" and press [**enter**].
    - ▪ The answer 2/3 will appear in cell B2

Name_____

Extension 4.9
Now finish problems 1 - 15 using Excel and come back when you are ready to start #16.

For 16 - 23 we are told to evaluate 4x and then given a value for x.

We will use an equation to work these.

- ✓ Type "**+ c16 * 4**" into cell B16 and press [**enter**].
    - ○ The answer will be...0
- ✓ Fill the equation down through cell B23 by highlighting B16 through B23 and pressing **Control and D** or using "**Edit** - **Fill** - **Down**" from the menu bar.
    - ○ A bunch of 0's are showing!
- ✓ The equation 4x is now written in each cell B16 through B23. The reason we have 0's in each cell is that we have not told Excel what x is. We need to type the value of x into the cell that we indicated in the equation.
- ✓ We told Excel to multiply what ever is in the C column by 4.
    - ○ Problem 16 is x = $^1/_4$
    - ○ Type "**+1/4**" into cell C16!
        - ▪ The answer "1" will appear in cell B16
        - ▪ If the answer did not calculate - mash F9 to force Excel to do your work.
    - ○ Let's do number 17; x = $^3/_8$
    - ○ Type "**+3/8**" into cell C17
        - ▪ 1 1/2 appears in B17
- ✓ Finish through 23
- ✓ Problem 24 involves 2 steps so we will work that together when you are ready.
- ✓ Problem 24 states that you have 20 buckets of sand and use $^4/_7$ of those buckets.
    - ○ To find out how many are left you need to multiply by the remaining fraction ($^3/_7$) or find the amount used and subtract from 20.
    - ○ We will subtract the amount used from 20.
        - ▪ In cell B24, type "**+ 20 - 20 * 4/7**"
            - • (20 - amount used) is the way to read the equation above.
            - • The Order of Operations will ensure that the amount used is calculated first.

Copy the answers into your workbook!

Name_____

Extension
6.2 Use Excel to Find Averages

1. Today we will be using Microsoft Excel to find averages for various data sets.
- You will use workbook page 6.2 for the data sets.

2. Open Excel

3. Enter the data set for problem 1 into cells A1, A2 ...
- pressing [**enter**] after typing each number will move you to the next cell.

4. Now just for fun (and review) let's sort the data.
- Highlight cells A1:A5
- click **data** from the menu bar
- click **sort**
- make sure the options are column A and ascending
- click **OK**

5. It is time to make Excel do our work.
- Starting in cell B10, type Mean.
- B11 type Median
- B12 type Mode
- B13 type Range.

In cell A10 we will tell Excel to figure out the mean of the data set.

There are many ways to insert a function.

We will type (or paste) them in because your version of Excel may not be the same as everyone else's.

Later, you can experiment with the function button and insert function commands.

6. What mathematicians call **mean**, Excel calls **average**.
- In cell A10 we will type =Average(A1:A9) then press [**enter**]
- the equals sign (=) tells Excel to calculate
- Average tells excel to find the mean. (A1:A9) tells Excel the data is located in cells A1 through A9.

7. Excel calculated the mean of the data in cells A1 through A9.
- Cells A6 through A9 are empty so Excel ignored them.
- We may put data in there later.

8. Let's tell Excel to find the **median** of cells A1:A9
- In cell A11 type =Median(A1:A9) and press [**enter**]
- What does Excel say the median of this data set is?

Extension

9. Let's tell Excel to find the **mode** of cells A1:A9
- In cell A12 type =Mode(A1:A9) and press [**enter**]
- What does Excel say the mode of this data set is?
- You will need to be careful with Excel and finding mode. Excel apparently can't tell when more than one mode is present. Always check its work!

10. Range is not a function of Excel. However, you can get Excel to subtract the Minimum value from the Maximum Value in a data set.
- Type or paste the following command into cell A13.
- =Max(A1:A9) - Min(A1:A9)
- press [**enter**]
- Excel says the Range is ___.

	A1	▼	ƒx
	A	B	
1			
2			
3			
4			
5			
6			
7			
8			
9			
10	#DIV/0!	Mean	
11	#NUM!	Median	
12	#N/A	Mode	
13	0	Range	

11. Record your answers for problem 1 into your workbook!

12. Now delete the data in cells A1:A5 so that we can do problem 2
- We will click cell A1 and begin entering the data for problem 2.
- Use the [**enter**] key to move to the next cell!
    1. In cell A1 type 81
    2. A2 type 97
    3. A3 type 99
    4. A4 type 89
    5. A5 type 91
    6. A6 type 76

13. Notice that our answers changed!
- #N/A for mode means that there is no mode!

14. Record the answers for problem 2 in your workbook! (make sure to show 88.833333 as 88.8$\overline{3}$)

15. Delete the data for problem 2 (cells A1:A6)
- And enter the data for problem 3!

16. Finish your home work.

Name _____ Date _____ Class _____

Homework and Practice
Range, Mean, Median, and Mode

Find the range, mean, median, and mode of each data set.

1.

School Jump Rope Records (total jumps)	138	142	144	138	143

_____

_____

2.

Jessica's History Test Scores	81	97	99	89	91	76

_____

_____

3.

Weights of Wrestlers (lbs.)	145	210	178	195	153

_____

_____

4.

Daily Summer Temperatures (°F)	87	93	79	93	89	87	95

_____

_____

5.

Daily Theater Ticket Sales	121	89	98	101	109	153	162

_____

_____

6. Kristy has 4 dogs and 2 cats. The mean age of her pets is 3 years. What will their mean age be 10 years from now? twenty years from now?

_____

7. In a class of 19 eighth graders, all but three of the students are 14 years old. There is one student who is 15 and two who are 13. Which two data measurements are the same for the students' ages? What are those measurements?

_____

Holt Middle School Math   Course 1

Name_____

Extension
6.3 Use Excel to Compare Averages

	A
1	25
2	26
3	32
4	24
5	28
6	
7	

1. Open Excel

2. Today we will be using Microsoft Excel to compare averages for various data sets.

- You will use workbook page 6.3 for the data sets.

3. Comparing data like this is exactly what Excel is perfect for!

- Let's enter the data for problem 1 in cells A1:A5.

4. Now we will prepare the averages area.

Since we will be comparing two sets of data, we will use columns A and B for data.

- In cell C9:C12 type: mean, median, mode and range.

5. Put the formulas into cells A9:A12.

- In cell A9 we will type: =Average(A1:A8) and press **enter**.
- In cell A10, type: =Median(A1:A8) and press **enter**.
- In cell A11, type: =Mode(A1:A8) and press **enter**.
- In cell A12, type: =Max(A1:A8) - Min(A1:A8) and press **enter**.

6. Now write the answers to #1 in your workbook!

7. Question 2 uses the same data and formulas with the addition of an outlier.

- We will use the fill right command to prepare column B for problem #2.
    1. Highlight cells A1:B:12
    2. choose **edit - fill - right**

8. We will put Mr. Johnson's class in cell B6. Type 35 into cell B6 and press **enter**. Notice that the values for the mean, median and range have changed!

9. Enter the answers for problem #2 into your workbook.

10. We will use column D to measure the effects of Mr. Johnson's outlier.

- In cell D8 type **difference**.
- In cell D9 we will subtract A9 from B9, type: =B9-A9 and press **enter**.
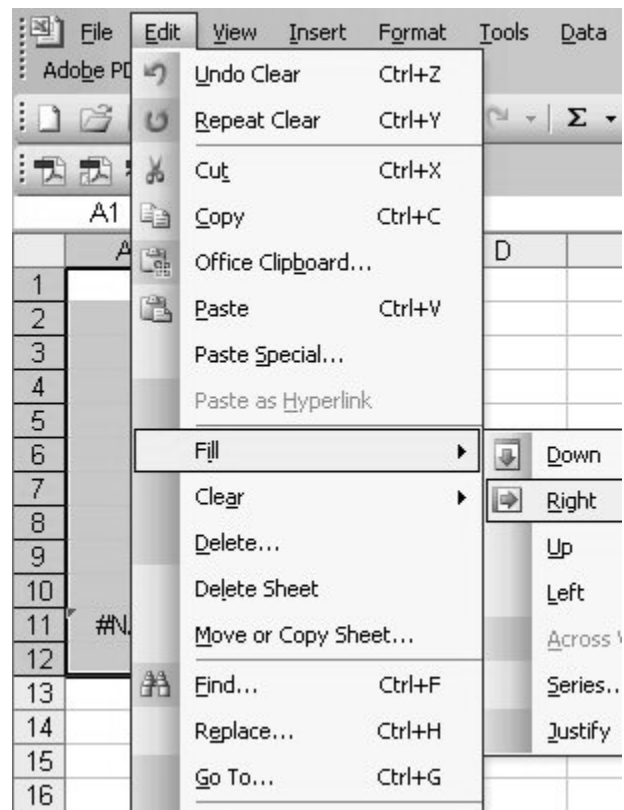
Extension

11. Highlight cells D9:D12 and choose **edit - fill - down** to copy the subtraction equation to all of the cells.

12. Question #5 asks which measure was affected the most by the addition of Mr. Johnson's class. While the correct answer is range (3), range was not a part of the problem. Which measure from problems 1 and 2 was affected the most?

     a) mean

     b) median

     c) mode

13. Let's do problems 3 and 4 the easy way.
   - Delete the data in cells A1:B6.
   - Type the new data into cells A1:A5.

14. Record your answers to number 4 in your workbook.

15. Highlight cells A1:B5 and use **edit - fill - right** to copy the data into the B column.

16. Add Ms. McMillian's 21 students to cell B6 to discover the new median.

17. Record your answers for #6 into your workbook.

Name _____ Date _____ Class _____

Homework and Practice
Additional Data and Outliers

Use the table to answer the question.

1. The table shows enrollment data for several math classes. Find the mean, median, and mode of the data.

_____

_____

Math Class Enrollment	
Class	**Students**
Mr. Becker	25
Mrs. Blum	26
Mr. Charles	32
Ms. Jensen	24
Mr. Balog	28

2. Mr. Johnson has the largest math class with 35 students. Add this number to the data in the table and find the mean, median, and mode.

_____

_____

Use the table to answer the questions.

3. The table shows enrollment data for several science classes. Find the mean, median, and mode of the data.

_____

_____

Science Class Enrollment	
Class	**Students**
Mr. Hunter	31
Mr. Solomon	29
Mrs. Madison	24
Mrs. Little	34
Mrs. Smith	23

4. Mrs. MacMillian has 21 students in her science class. Add this number to the data in the table and find the mean, median, and mode.

_____

_____

5. In Exercise 2, which measure was affected the most when the number of students in Mr. Johnson's class was added?

_____

6. In Exercise 4, which measure is not affected when the number of students in Mrs. MacMillian's class is added?

_____

Holt Middle School Math   Course 1

Extension 6.4 - Use Excel to Make Bar Graphs

1. Today we will be using Microsoft Excel to make bar graphs for various data sets.

2. First we must enter the information into the cells as though we are going to make a table.

- Let's type the title of our bar graph into cell A1.
  - o Type or paste - **Favorite Color** into cell A1.
  - o Press **enter** to tell Excel that you have entered the data

	A	B
1	Favorite Colors	
2	Blue	9
3	Red	6
4	Green	4
5	Other	7
6		

3. Now we will enter the categories.

- In cells A2 type **Blue**
- A3 type **Red**
- A4 type **Green**
- A5 type **Other**
- Press **enter** to tell Excel that you have entered the data.

4. In cells B2:B5 we will enter the data. **9, 6, 4, 7**

- Press **enter** after each number so that you will move to the next cell.

5. Now we must tell Excel what data we want to use to make the graph (chart).

- Highlight cells A2:B5
- Select **Insert** from the menu bar
- Select **Chart**

6. You are looking at the "Chart Wizard". Notice that Excel has **Column Charts** and **Bar Charts**. Column Charts are the horizontal bar graphs that we are used to seeing and making so leave that alone.

7. There are several options in the right hand panel.

- I think that the Clustered-Column with 3D visual effect is a nice graph.
- Click the first chart sub-type in the second row to select this type of graph.
- Then select **next** to move to the next step.
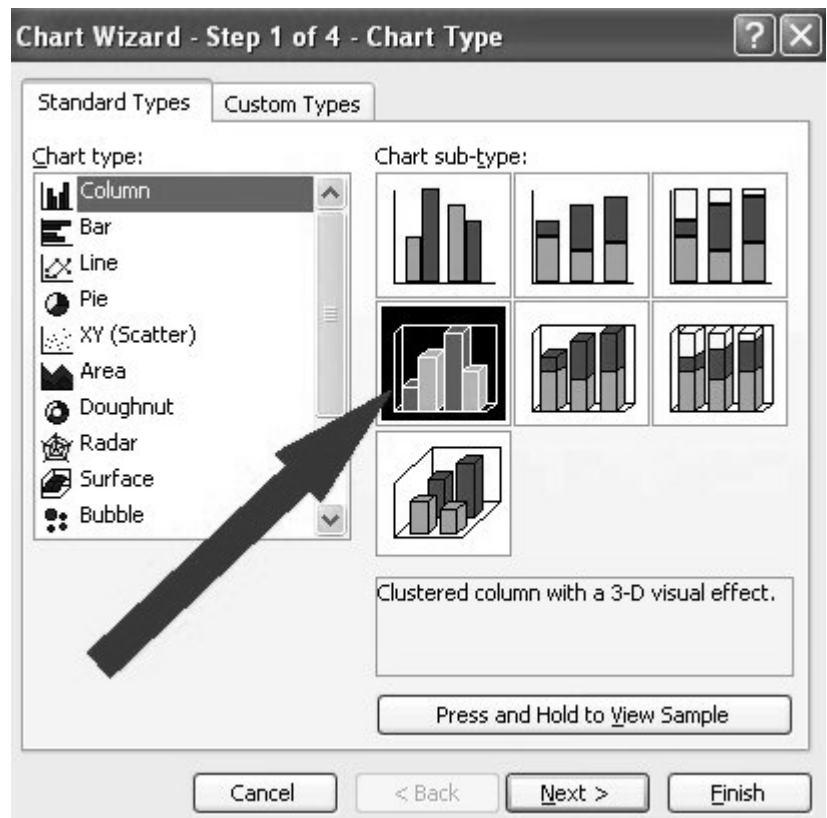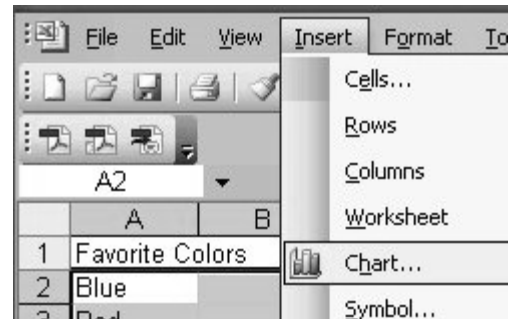
Extension 6.4 - Use Excel to Make Bar Graphs

8. **Step 2** shows a preview of the graph. We should examine it to make sure our **x** axis is correct.

9. Choose **next** to move to step 3.

Chart Wizard - Step 2 of 4 - Chart Source Data

Data Range | Series

Data range: =Sheet1!$A$2:$B$5

Series in: ○ Rows
　　　　　 ◉ Columns

Cancel | < Back | Next > | Finish
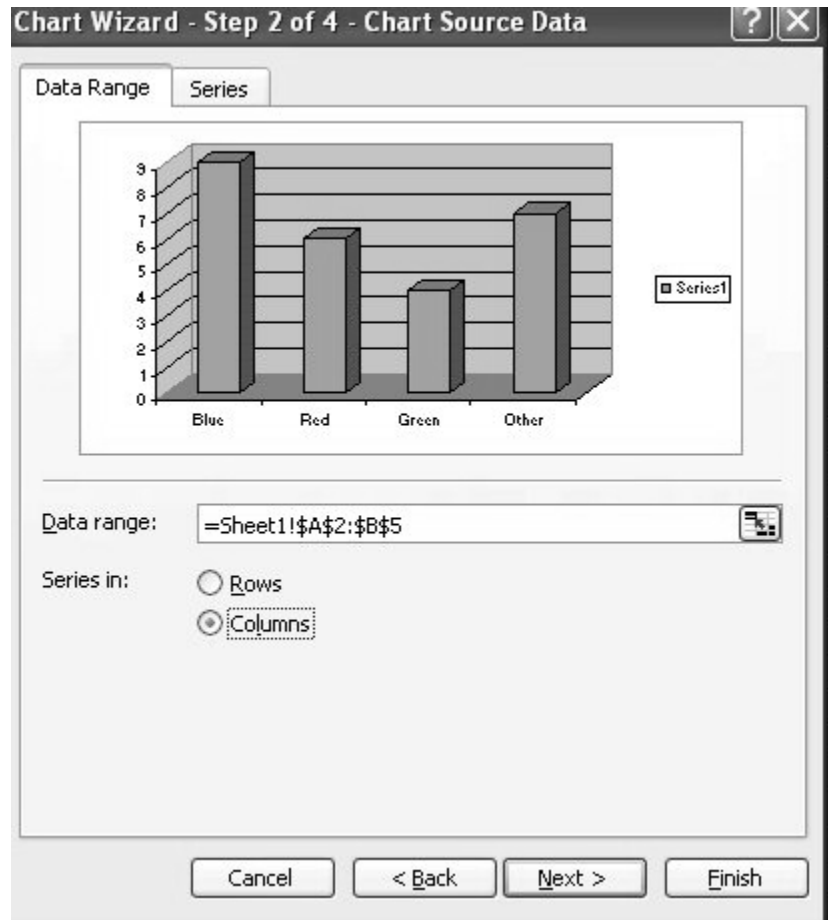
10. Step 3 is a **multi-step** wizard. I have found that students don't use this step as well as they should.

- Notice the "tabs" for many different options.
- We will use the "**title** and **legend** tabs almost every time we hit this step!

11. In the text box for chart title type **Favorite Colors**.
We do not need to title the x axis since the colors are self explanatory.
a) OK

Chart Wizard - Step 3 of 4 - Chart Options

Titles | Axes | Gridlines | Legend | Data Labels | Data Table

Chart title:

Category (X) axis:

Series (Y) axis:

Value (Z) axis:

Cancel | < Back | Next > | Finish
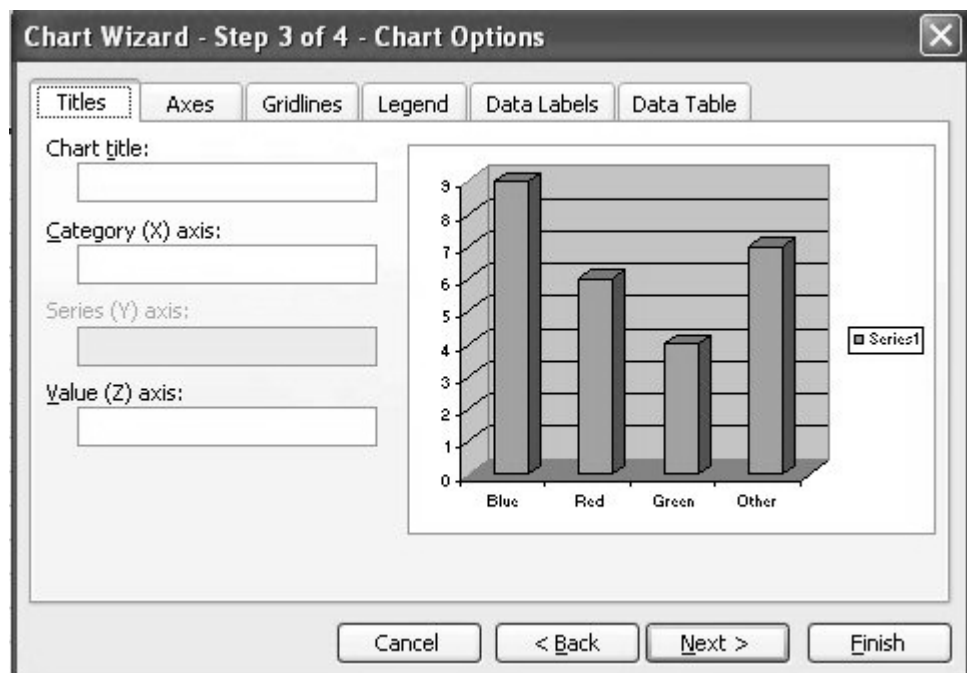
Extension 6.4 - Use Excel to Make Bar Graphs

12. Now select the **Legend** tab.
- We only have one type of data so we do not need a legend.
- Click the check box next to "show legend" to turn off the legend.
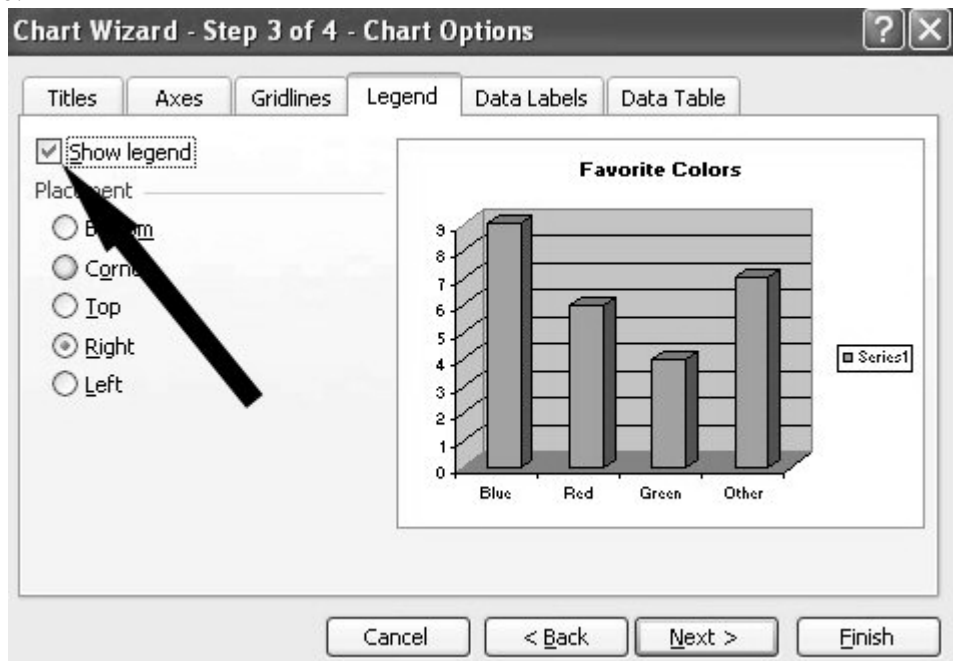
13. The graph looks pretty good. Click **next** to move to step 4, Chart Location.

14. Now we must decide whether to make the chart a small object in a sheet (default) or a large graph as a whole sheet.
- We will create the graph as a new sheet called **Colors Graph**
- Select the radio button next to "**As a new sheet:**"
- Then replace Chart1 by typing **Colors Graph** into the text box.
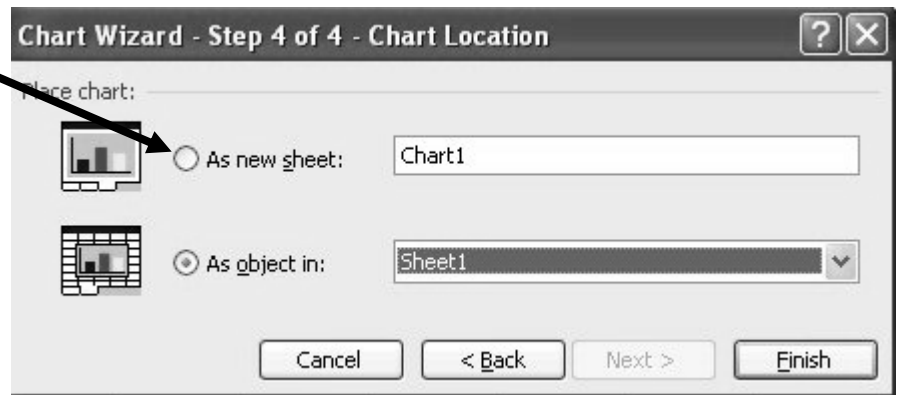
15. Click **Finish** to create the graph!

16. We need to put our name on the graph.
- Click "**View**" from the menu bar
- Click "**Header and Footer**"
- Click "**Custom Header**" and put your name in the right hand section.
- Click "**OK**" to complete the custom header.

17. Let's put the name of the worksheet into the footer.
- Click "**Custom Footer**"
- Click in the center section, then choose the icon that looks like an index card with tabs on the bottom.
- The result should be "**&tab**"
- Choose "**OK**" to complete the footer.
- Choose "**OK**" to finish working with the header and footer.

Extension 6.4 - Use Excel to Make Bar Graphs

18. Our graph is finished. It is time to make it look snappy.
   - The first decision is whether we want our graph to be printed in black and white or color.
   - Since this graph is about favorite colors, I think a color graph will be nice.
   - As I make modifications to the formats, I will choose colors and effects that will make for an impressive color graph!
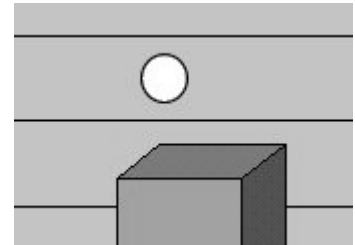
19. **Right Click** any gray area on the walls that you want.
   - If you look at the model on the right, I have drawn a circle to show you an example of where to click.
   - Choose "**format walls**

20. You could choose a solid color or click "fill effects" to really make your graph special.
   - We will choose **fill effects** to learn more about this option.

21. For the background we will want a light color or pattern.
   - Yellows are not a part of the graph choices so we will use yellows for our background.
   - Choose the radio button for **Two Colors**.
   - Choose **tan** for color 1 and **gold** for color 2.

22. The default shading style is "**Horizontal**" with gold on the bottom blending to tan on top.
   - That is perfect for our graph so we will click "**OK**" and "**OK**" to finish formatting the walls.

23. We need to follow the same procedure to jazz up the "**floor**".
   - **Right Click** any blank area on the floor.
   - Choose "**Format Floor**"
   - Choose "**Fill Effects**
   - Choose "**Two Colors**"
   - Choose "**tan**" for color 1 and "**gold**" for color two.
   - **Before** you click OK, change the shading style variant to the one in the upper **right** hand corner!
   - Choose "**OK**" and "**OK**" again to finish formatting the floor.
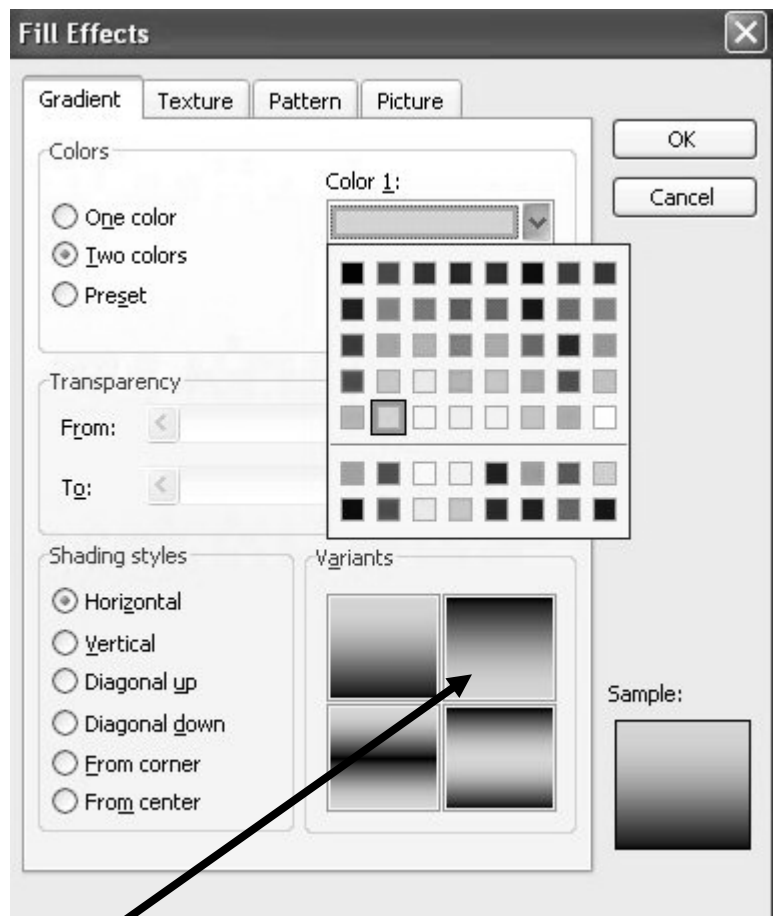
Extension 6.4 - Use Excel to Make Bar Graphs

24. Let's spruce up the bars now.
    - To select individual bars you need to click the bar once...wait a second and click it again.
    - You will notice that the first click selects all of the bars.
    - The second click singles out the bar you want to work on.
25. **Right Click** the blue bar and choose **format data point**.
    - If the option says format data series, click the wall and try to single out the blue bar again by going back to question 27.
26. Choose two "blue colors" and any shading variant you want.
    - Complete the decoration for **each** of the "colors".
    - Use vibrant colors to stand out against your background.
    - When your graph is finished, look at the next step to find out why Excel graphing rules!

27. You have made an awesome graph and are very excited about it. You show it to your partner and he says, "Um, you forgot **purple**! There are 3 students who chose purple!"
    - Yikes! All of that work and you won't get an A!
    - Don't panic, Excel has the answer for you.
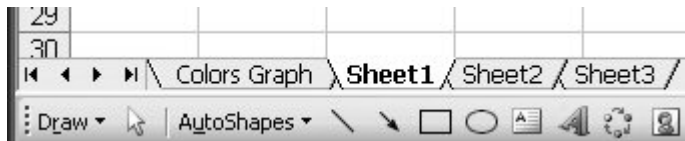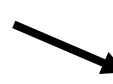
28. Click the tab for Sheet1 to return to the data for the graph.

29. We will put purple between red and green.
    - Click the "**4**" to select the entire "green" row.
    - Choose "**Insert**" from the menu bar and choose "**Row**".
    - Type "**Purple**" into cell A4 and "**3**" into cell B4.
    - Press **enter** to tell Excel that you are finished.

30. Now go back to the Colors Graph page and fix up the formatting!!

31. Print your graph or save your file and bring it to school to print!

Extension 6.5 – Histograms and Excel

1. Today we will be using Microsoft Excel to create a Histogram. It is very important that you complete this activity as I will show you a way to do this that makes sense (Excel instructions don't!)

Number of Minutes Spent on Homework Last Night

52, 36, 10, 32, 50
18, 72, 52, 34, 36
61, 27, 56, 22, 13
60, 73, 63, 76, 59
0, 32

2. We will create a Histogram of the data shown on the right.
- The data is **too** varied to make a bar graph so we will need to group the data into intervals.
- Step 1 is to determine the range of the data.
- What is the range of the data shown in the table? _____

3. Now we need to decide on an appropriate interval.
- If we round 76 to 80 then our intervals can be 20 minutes and we will have 4 bars on our graph.
- Go to Excel and type the intervals into A1:A4 as shown on the right.

	A	B
1	0 - 20	
2	21 - 40	
3	41 - 60	
4	61 - 80	
5		

4. Now tally each piece of data and record the frequency in the table.
- We need to make sure that the total of our frequencies matches the total of the data set.
- There are 22 pieces of data so the sum of column B should be 21.
  - In cell B5 type or paste: **=SUM(B1:B4)**
  - then press [**enter**] to tell Excel to calculate.

	A	B
1	0 - 20	4
2	21 - 40	7
3	41 - 60	6
4	61 - 80	5
5		22

View	Insert	Format	Tools
Help	Cells...		
B	Rows		
	Columns		
	Worksheet		
	Chart...		
	Symbol...		
	Page Break		

5. We are ready to make our histogram!
- Highlight all of your data (and **only** the data) that you want to graph.
- Highlight cells A1:B4 as shown in the picture above.
- Click **Insert** from the menu bar.
- Select **Chart**
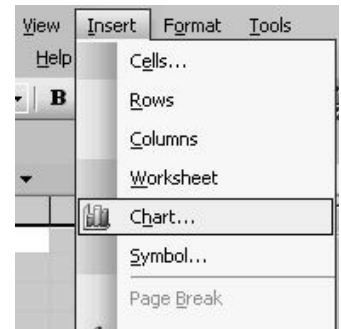
6. I have never seen a 3D Histogram so let's stick with the default option (clustered column).
- Remember - Excel calls normal bar graphs Column Graphs!
- Select **Next** on the Chart Wizard to continue to step 2.

Extension 6.5 – Histograms and Excel

7. You should be looking at a boring and flat bar graph. We do not want to make any changes so click **next** to move to step 3.

8. We need to add a title and **get rid** of the legend!

- Type the title: **Homework Time Last Night** into the Chart Title text box.
- Type **Minutes** into the Category X axis text box.
- Type **Students** into the Category Y axis text box.
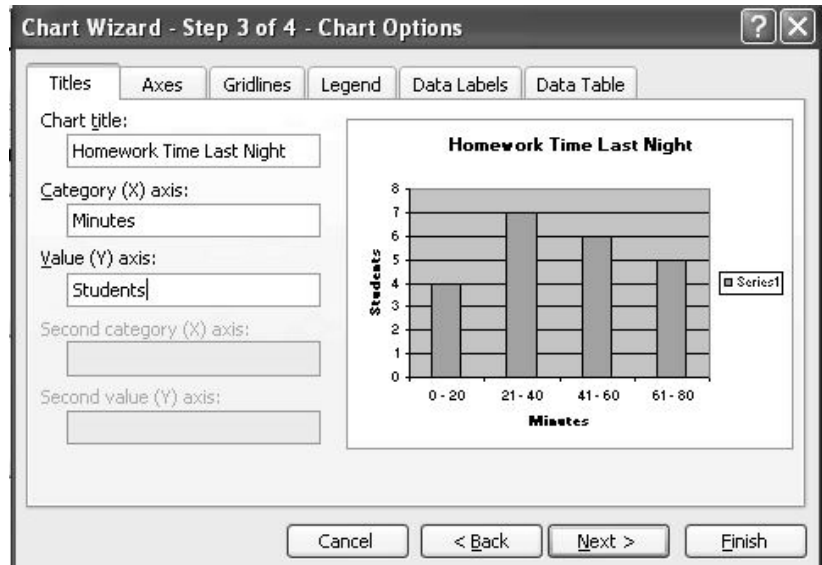
9. Now get rid of the legend by clicking the legend tab.

- Click the check box for **show legend** to make the check go away.

10. Choose **Next** to move to the location step.
- Choose the radio button for **As new sheet**
- Name the new sheet: **Histogram**.
- Choose finish to start working on the graph!

11. Let's make it look like a histogram – I hope you ready to follow directions and learn a secret method that very few people know?

- **Right Click** and of the bars
- Click **format data series**
- Choose the **Options** tab
- Change the **gap width** to 0
- Press **OK** to view your Histogram!

12. Before I leave you alone to let you decorate this Histogram like any other graph, we need to take care of a few **don't forgets**!
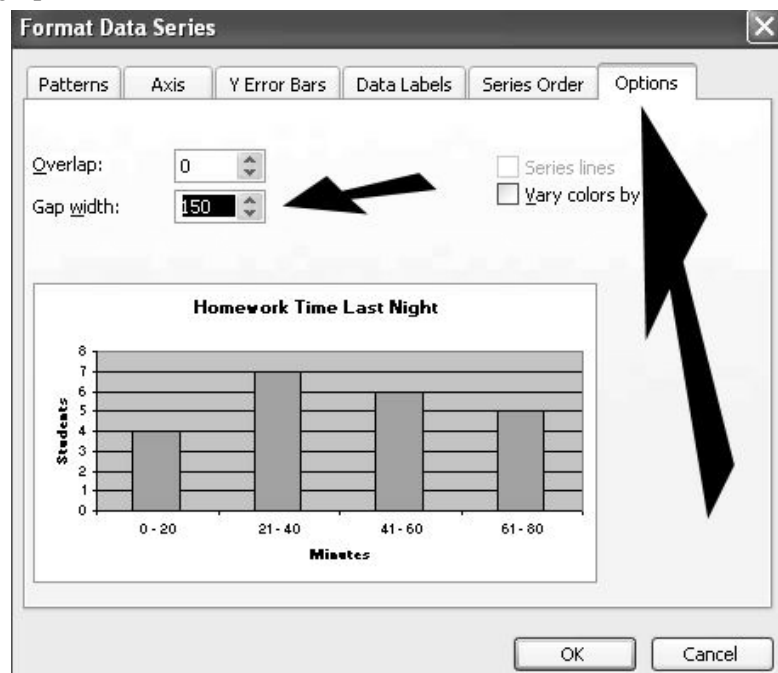
Extension 6.5 – Histograms and Excel

13. Put your name on your graph.
- Click **view** from the menu bar
- Click **Header and Footer**
- Click **Custom Header** and put your name in the **Right Section**
- Click **OK**
- Choose **Custom Footer**
- Put your curser into the center section.
- Click the index card as shown in the picture below.
- The center section will print the sheet title and shows this as "**&[Tab]** "
- Select **OK** to exit the footer wizard.
- Select **OK** to exit the Header and Footer Wizard.
- You should now be looking at your Histogram.
- I am - but it is ugly and I want to decorate!

View   Insert   Format   Tools

Toolbars ▸
✓ Formula Bar
✓ Status Bar
Header and Footer...
Comments
Custom Views...
Full Screen
Zoom...

Footer

To format text: select the text, then choose the font button.
To insert a page number, date, time, file path, filename, or tab name: position the
    insertion point in the edit box, then choose the appropriate button.
To insert picture: press the Insert Picture button. To format your picture, place the
    cursor in the edit box and press the Format Picture button.

OK
Cancel

Left section: Center section: Right section:
                    &[Tab]

14. A final note before decorating. Histograms should use vibrant colors that contrast with each other. This helps to separate the bars **since there are no gaps**!

Homework Time Last Night
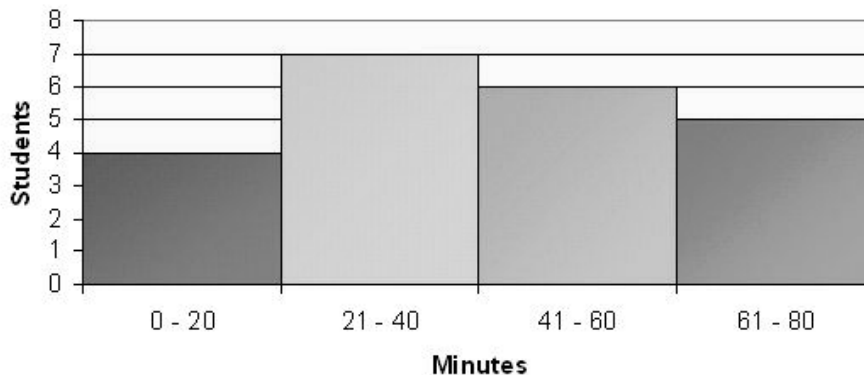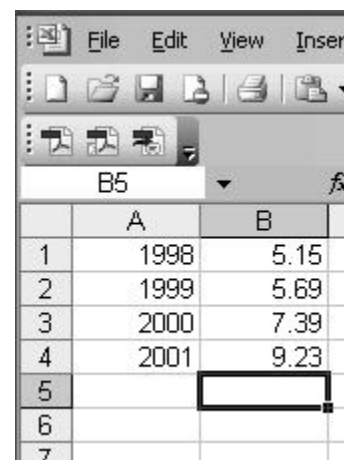
Extension
Use Excel to Make a Line Graph (6.7)

1. Today we will be using Microsoft Excel to make line graphs.
   - You will use workbook page 6.7 for the data set.

2. We will start by entering the time span.
   - In cell **A1** type **1998** and press [**enter**].
   - In cell **A2** type **1999** and press [**enter**].
   - In cell **A3** type **2000** and press [**enter**].
   - In cell **A4** type **2001** and press [**enter**].

3. We will start by entering the data.
   - In cell **B1** type **5.15** and press [**enter**].
   - In cell **B2** type **5.69** and press [**enter**].
   - In cell **B3** type **7.39** and press [**enter**].
   - In cell **B4** type **9.23** and press [**enter**].

4. Let's take a moment to tell Excel that the values in B1:B4 are money.
   - Highlight cells B1:B4
   - Choose "**Format**" from the menu bar.
   - Choose "**Cells**"
   - Choose "**Currency**"
   - Press **ok** to finish formatting the cells.
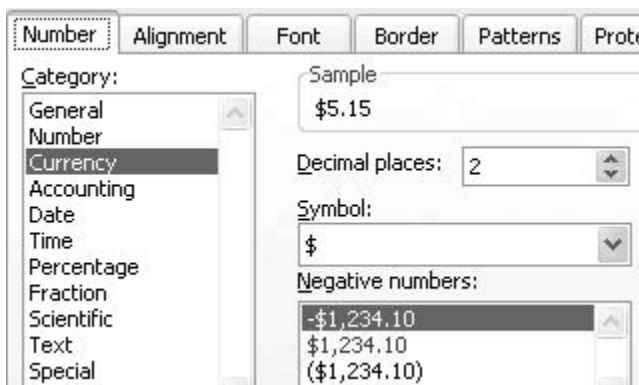
5. Now we will begin to make the graph.
   - Highlight cells B1:B4 by clicking cell B1 and dragging to cell B4.
   - Select **Insert** from the menu bar
   - Click **chart** on the submenu.
   - Choose **Line** from the Chart type section
   - "**Line with markers...**" from the chart sub-type section.
   - Choose **next** to complete step 1.

Extension
Use Excel to Make a Line Graph (6.7)

6. Switch to the "**Series**" tab at the top of the wizard box.

- Now we need to assign the "**category x axis labels**"
- Select the button to find data from the worksheet button. (as shown in the picture on the right).
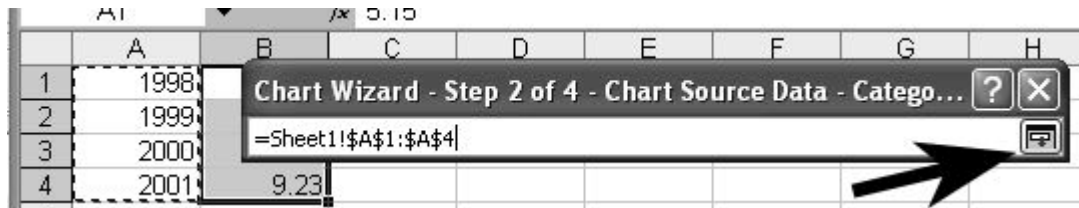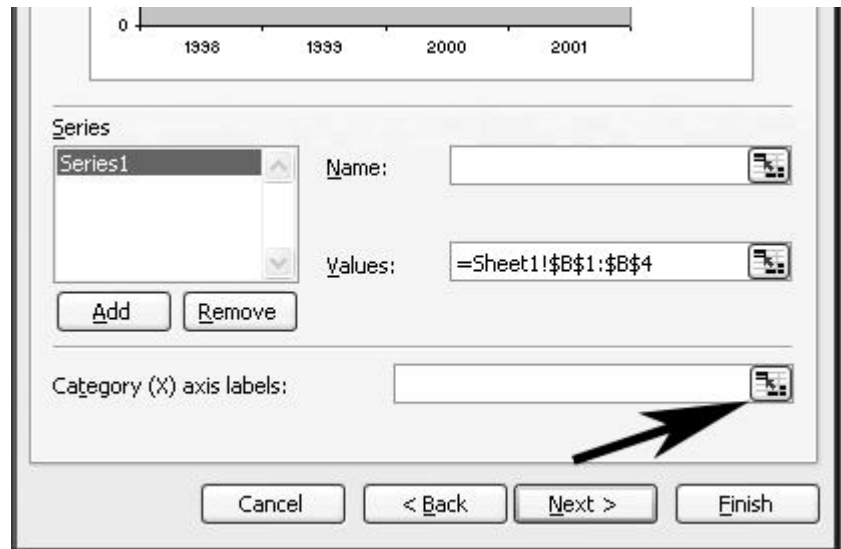

7. Highlight cells **A1:A4** and select the enter data button as shown in the picture above.

8. Your preview should be pretty close to the graph that we are trying to make. If you look it over, you will notice that the interval on the Y axis is not what we want and the legend needs to go away.

9. Enter the "**Chart title:**" by typing "**Juan's Hourly Wages**" into the Chart title text box.

10. Click the "**Legend**" tab and remove the check in the checkbox next to "**Show legend**".
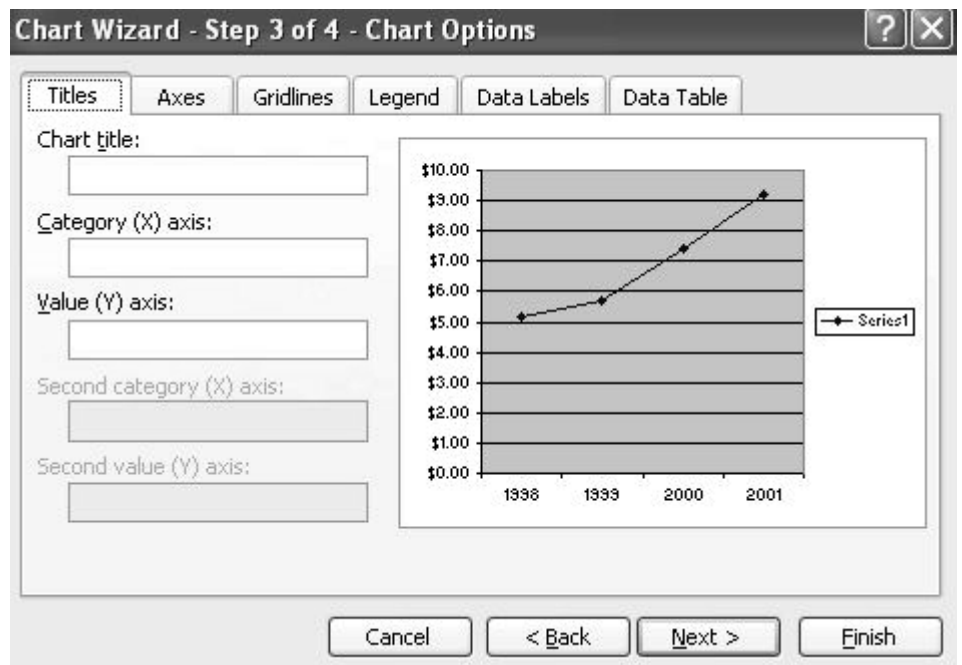
11. Click **Next** to move onto the chart location step.

Extension
Use Excel to Make a Line Graph (6.7)

12. In the chart location step, we want to choose as a new sheet.

- Click the radio button for the new sheet as shown in the picture above.
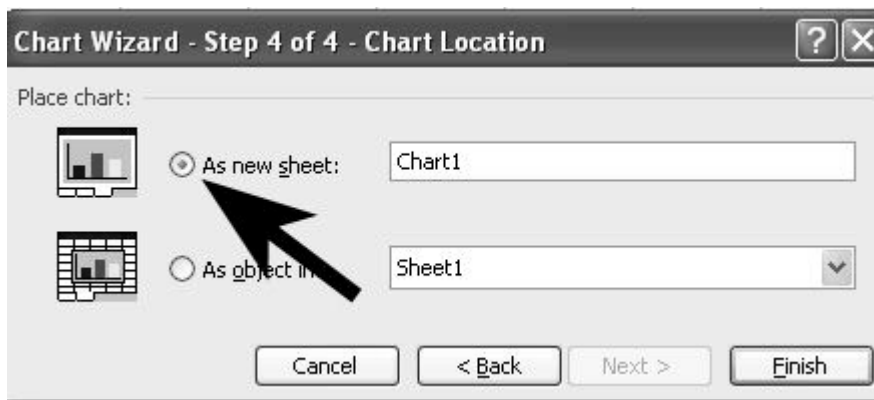
13. The graph should look pretty much like you wanted.
Let's put our name on it.

- Select "**View**" from the menu bar.
- Choose "**Header and Footer**"
- Select "**Custom Header**"
- Type your name into the right section.

14. We still need to change the interval on the Y axis so that it will match the assignment in our workbook.

- **Right Click** anywhere on the Y axis.
- Choose **format axis**
- Choose the "**Scale**" tab at the top of the wizard
- Change the **major unit** to 2.
- Press "**ok**" when you are finished.
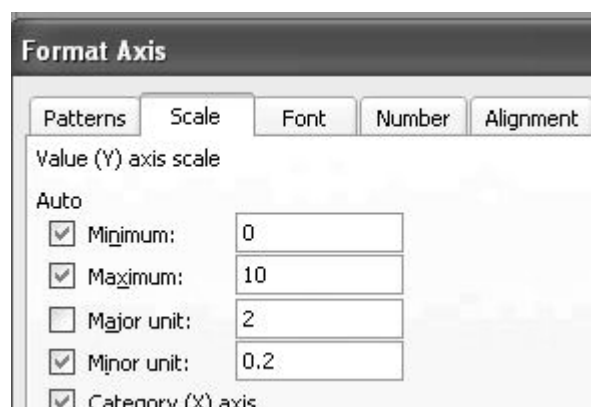
15. Now it is time to decorate our graph to make it appealing to the viewer. You can right click and format all aspects of the graph. As you continue with this lesson, I will assist you in formatting the data series, fonts and the plot area.

16. Lets start by formatting the line and its dots.

- Right Click on the line and choose "**format data series**
- I prefer a heavy weighted line, so under **line weight**, I use the drop down arrow to select the heaviest line.
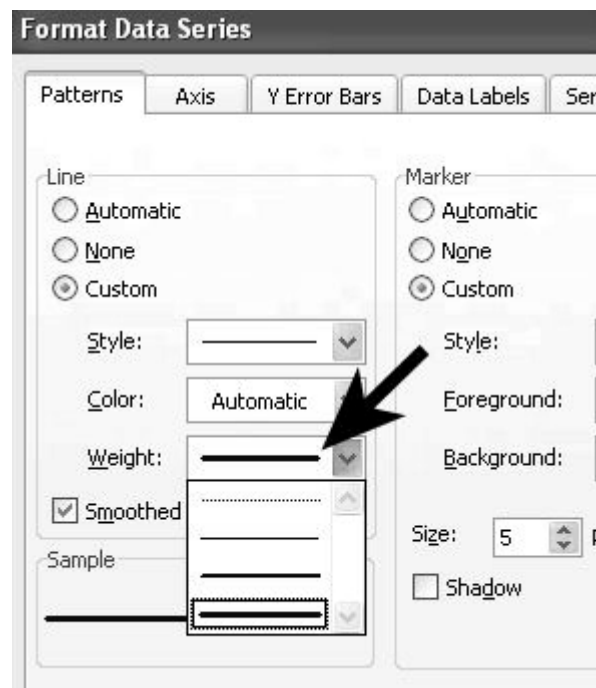
17. If you wish to change the markers, do so before moving on to the remainder of the graph.

Extension
Use Excel to Make a Line Graph (6.7)

18. Now let's change the font of the title, x axis and y axis.
- **Right Click** the title.
- Choose format chart title.
- Choose the font tab and change the font size to 16.

19. **Right Click** any number on the Y axis.
- Choose format axis.
- Choose the font tab and change the font size to 14.

20. **Right Click** any label on the x axis.
- Choose format axis.
- Choose the font tab and change the font size to 14.

21. Super! Now all you need to do is change the ugly gray background into something you like and you will be finished!
- Right Click any blank area of the plot area and choose format plot area.
- Notice the "Fill Effects" option button is available and choose **light** colors for your background so that your line will stand out.

Name _____ Date _____ Class _____
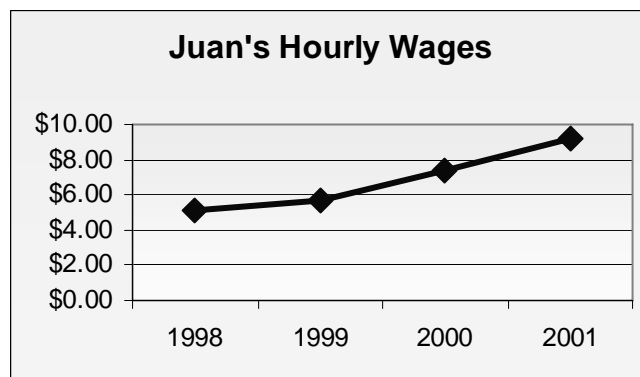
Homework and Practice
Line Graphs

Use the line graph to answer each question.

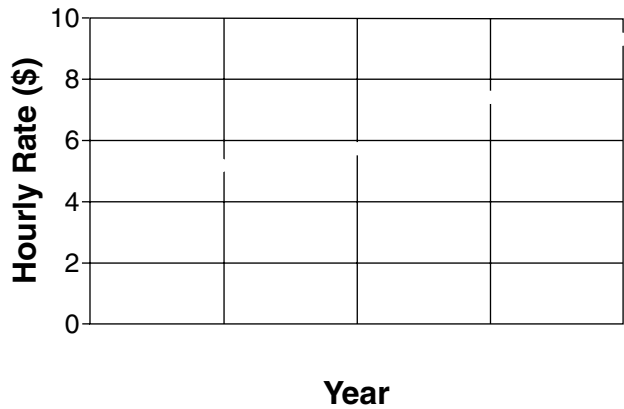**1.** In which year were Joe's average weekly earnings the lowest? the highest?

_____

2. In general, how did Joe's average weekly earnings change between 1996 and 2000?

_____

_____

_____

3. In which year did Joe earn about $250 a week?

_____

Joe's Average Weekly Earnings
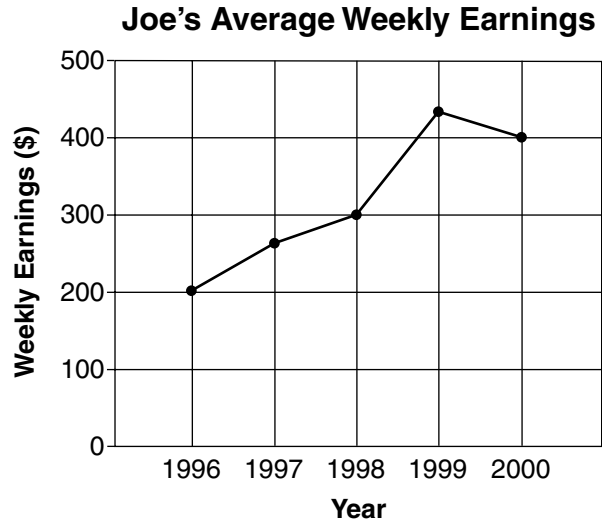
Use the given data to make a line graph and answer each question.

Juan's Hourly Wages	
Year	**Hourly Rate**
1998	$5.15
1999	$5.69
2000	$7.39
2001	$9.23

4. Between which two years shown on the graph did Juan's hourly wage change the least?

_____

5. How has Juan's hourly wage changed since1998?

_____

Holt Middle School Math   Course 1

Extension 6.8 - Excel - Changing the Axis Values

1. Today we will be changing the value of the axis in a Microsoft Excel graph. Changing the axis values will help us to create misleading graphs.

2. The following data needs to be entered into Microsoft Excel

Cell A1; type **McDonalds**

Cell A2; type **Burger King**

Cell A3; type **Wendy's**

3. Now let's enter the poll data into column B

Cell B1; type **8**

Cell B2; type **5**

Cell B3; type **2**

4. Let's create a graph of this data. Which type of graph will be the best?

     a) Line Graph   b) Circle Graph   c) Bar Graph

5. Click Cell A1 (McDonalds) and drag through cell B3 (2) so that all the data is highlighted.

- Be careful **not to highlight more** than the data you want to graph.

6. From the **menu bar** you will choose **Insert**.

- **Chart** may not be visible.
- If **Chart** is not visible click the little arrow at the bottom of the submenu.
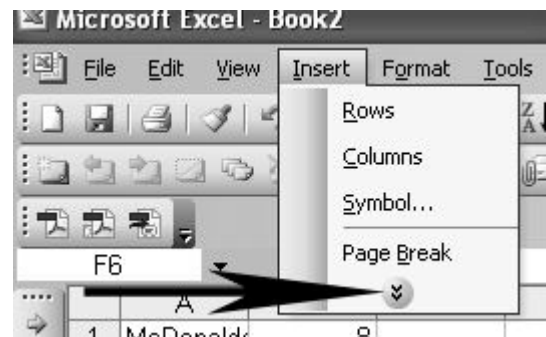
7. I hope that we agreed that a bar graph was the correct type of graph for this data.

- In Excel, we must call it a column graph.
- Choose the "Clustered Column with 3D effect" as shown in the picture on the right.
- Select "**Next**" to continue to Step 2 of the Chart Wizard.
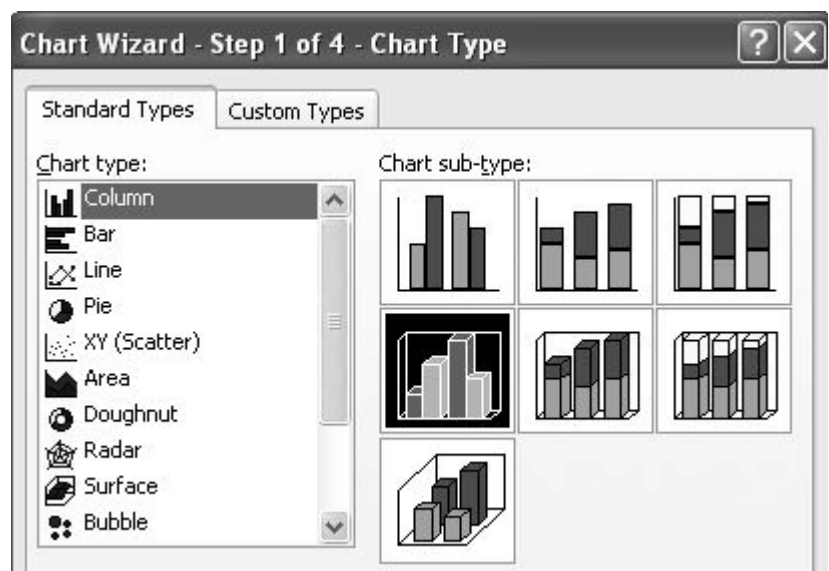
Extension 6.8 - Excel - Changing the Axis Values

8. The preview looks pretty good.

- I don't like the colors and I **hate** the legend, but we will fix those in future steps.
- Please choose "**Next**" to move on to Step 3 in the Chart Wizard.

9. The **first thing** that I want to do is get rid of the legend.

- Choose the **Legend tab** as indicated in the picture.
- Empty the checkbox beside "**Show legend**" so that the legend will disappear.
- Then return to the "**Titles** tab to continue working on our graph.
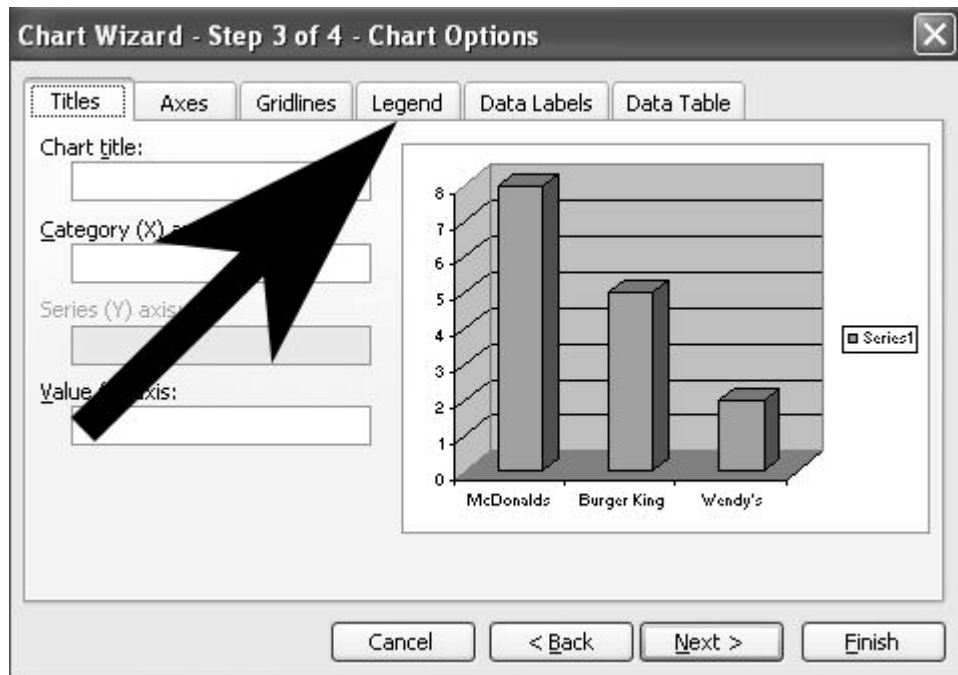
10. Type "**Favorite Fast Food**" into the Chart title text box.

- We will not be adjusting the axis from the wizard so you may click **next** to move to the location step.

11. Click the radio button beside "**As new sheet**" and I chose to name the new sheet.

- Type **Favorite Fast Food** into the text box.
- Click "**Finish**" to create the graph.

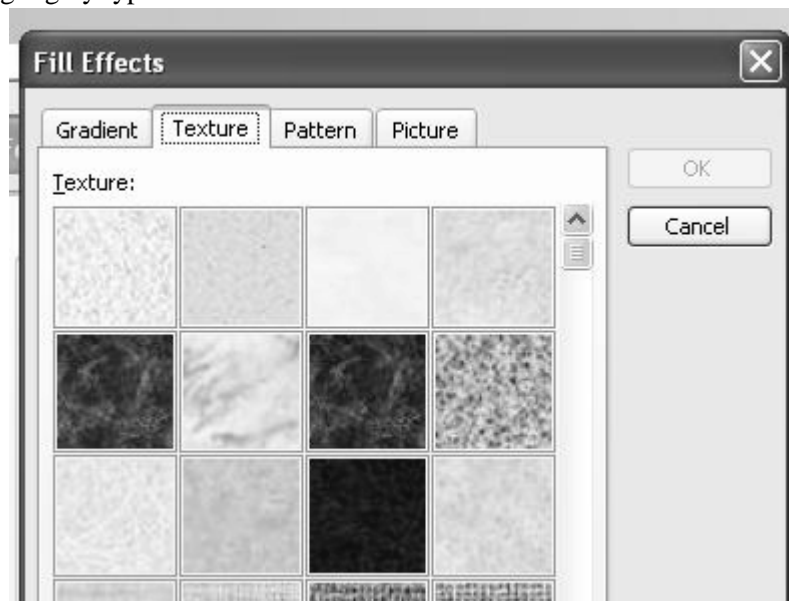12. Let's take a few moments to decorate our graphs.

- Right click any gray area on the wall and choose "**format walls**"
- Choose "Fill Effects"
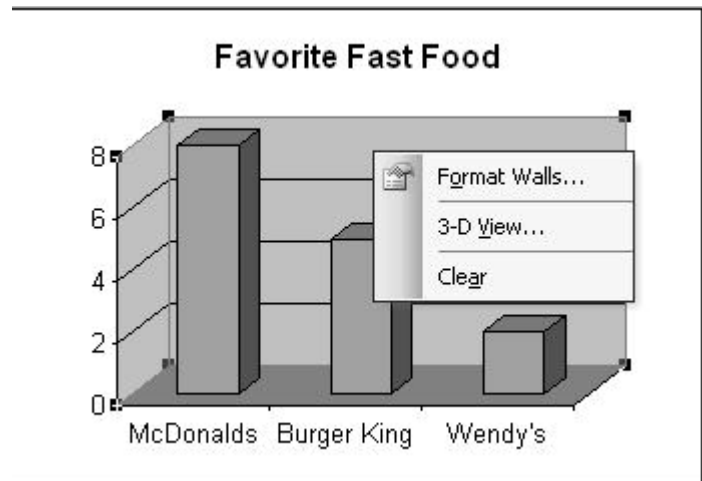
Extension 6.8 - Excel - Changing the Axis Values

13. Switch to the **texture** tab and choose a light gray type texture.
   - Select "**OK**" on the Fill Effects Menu.
   - Select "**OK**" on the Format Walls Menu.

14. Repeat the exact same process for the floor.
   - Right click the floor.
   - Choose "**format floor**"
   - Choose "**Fill Effects**"
   - Choose the texture tab
   - Choose the same texture you chose for the walls.
   - Select "**OK**" on the Fill Effects menu
   - Select "**OK**" on the Format Floor Menu.

15. Now decorate your data series the same way
   - I chose "**Gradient**"
   - **Two Colors**
   - Light Grey and Dark Grey.

16. Now it is time to mess around with the scale. We will start by making this data look better for Burger King.
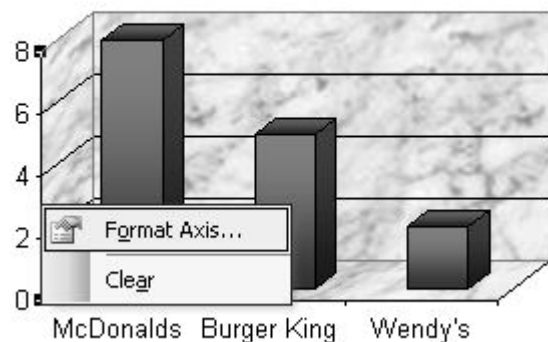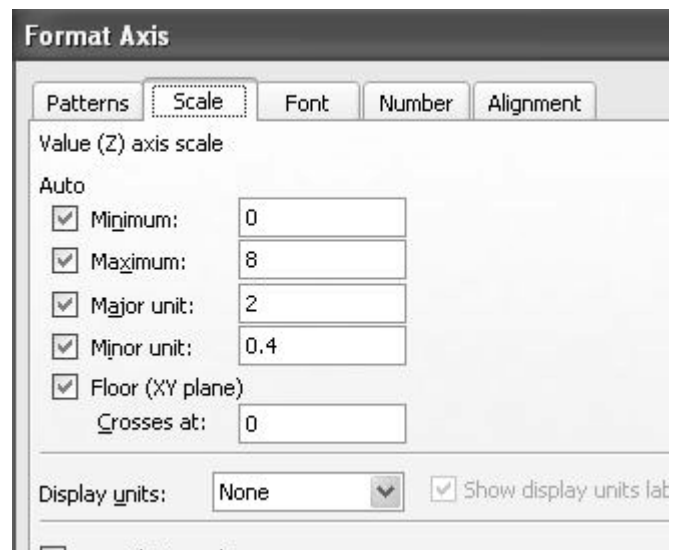
17. To make the data look better for Burger King, we want to make the bars smaller and more even. To do this, we need to raise the scale.
   - Right Click on the vertical axis and choose **format axis**.
   - Make sure the "**Scale**" tab is selected.
   - To raise the scale we want to change the **Maximum** to 50
   - Then change the **major unit** to 10.
   - Select "**OK**" to apply the changes to the scale.

# Extension 6.8 - Excel - Changing the Axis Values

18. As you can see, Burger King doesn't look so bad in this graph. Let's put our name on our work so that when it is printed our name will be on the paper.

- Select "**View**" from the menu bar.
- Choose Header and Footer
- Choose "Custom Header"
- In the "**right section**", type your name.
- Choose "OK" to finish the wizard.

Favorite Fast Food

19. Now you can try messing around with the graph to favor McDonalds or even Wendy's. Which of the following is the only thing you are **not** allowed to do when you make a misleading graph?

   a) Change the colors.
   b) Change the intervals.
   c) Change the data.
   d) Change the order.

Name_____
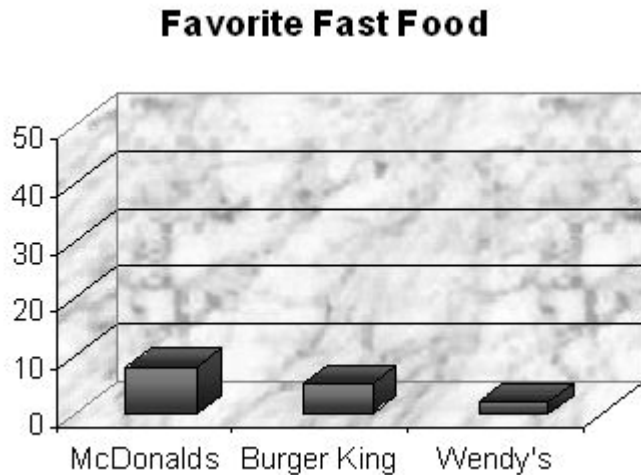
Extension 8.2 - Use Excel to Solve Proportions

Today we will be using Microsoft Excel to solve proportions. You will use workbook page 8.2 for the proportions. Get your workbook and turn to page 8.2.

1. The first problem is $\frac{18}{33} = \frac{n}{11}$.
Let's type this problem into Excel so that it will be easy to see.
- In cell **A1** type 18
- In cell **A2** type 33
- In cell **B1** type n
- In cell **B2** type 11

2. Let's make it look pretty so that we will better be able to see what it says.
- Highlight all the cells A1:B2.
- Select "**Format**" from the menu bar.
- Select "**Cells**"
- Select the "**Alignment**" tab
- Use the drop down arrow next to "**Horizontal**" to change the horizontal alignment to centered.
- Select "**OK**" to apply the changes.
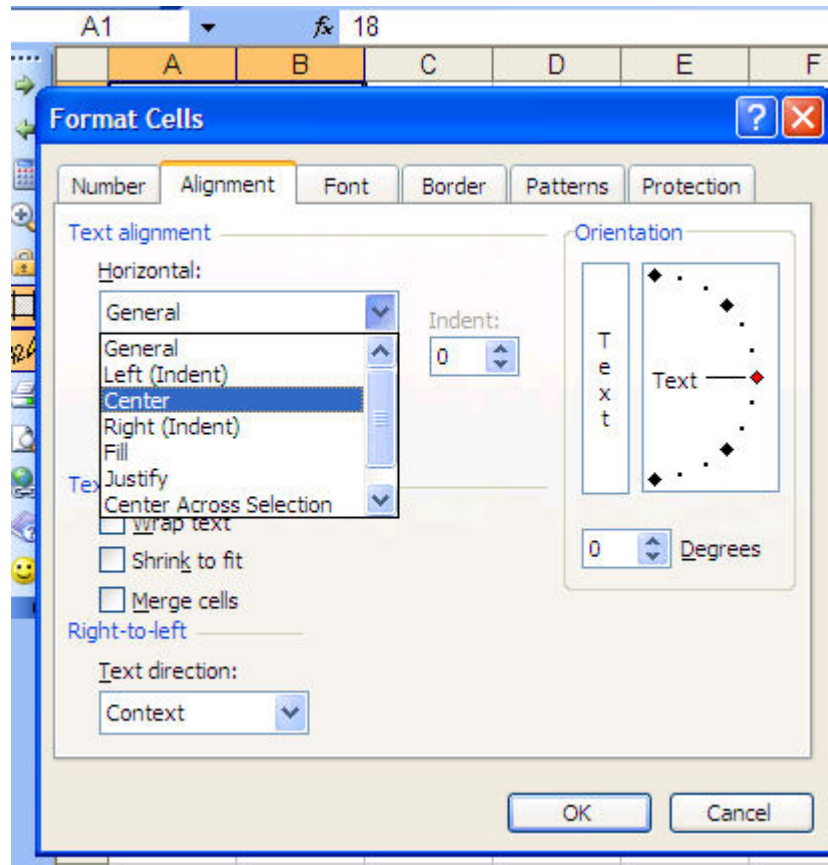
3. Now - We don't need that to solve the problem - we only made it to help us visualize the proportion. Let's solve the problem.

To solve the problem we should multiply on the cross is 11 * 18 then divide by the remaining number (33).

We will put the cross products in cells A4 and B4 then put the divisor in cell C4.
Use the **tab** key to move horizontally in Excel.
- In cell A4 type 11
- In cell B4 type 18
- In cell C4 type 33

Extension 8.2 - Use Excel to Solve Proportions

4. To calculate the value of *n*, we will put the formula
=A4*B4/C4 into cell D4

- Type the formula into cell D4 and press **enter**.
- What is the value of *n*?

D4	▼	*fx* =A4*B4/C4		
	A	B	C	D
1	18	n		
2	33	11		
3				
4		11	18	33	6

5. The cross product in problem two is 26 * 3. Then we
will divide by 2.

Use the **tab** key to move horizontally in Excel.

- In cell A4 type 26
- In cell B4 type 3
- In cell C4 type 2
- Press **enter** to force cell D4 to calculate.
- What is the value of *n*?

A5	▼	*fx*		
	A	B	C	D
1	18	n		
2	33	11		
3				
4	26	3	2	39
5				

6. Problem 3 has cross products 5 * 8 divided by 10.

Use the **tab** key to move horizontally in Excel.

- In cell A4 type 5
- In cell B4 type 8
- In cell C4 type 10
- Press **enter** to force cell D4 to calculate.
- What is the value of *n*?

As you can see - you will be able to finish your assignment very quickly and easily using these cells and the formula in cell D4. You can use the proportion you made to help you see the proportion for the word problems (12 and 13). Good Luck and enjoy your new skill!

Extension 8. 7 - Excel - Formatting Percents and Fractions

Today we will be learning how to format cells for percents, fractions and decimals using Microsoft Excel. Get out your workbook and open to page 8.7 now.

1. The first problem is 28% needs to be changed to a fraction in simplest form.
- We will create a template to use to change each percent into a fraction and a decimal.
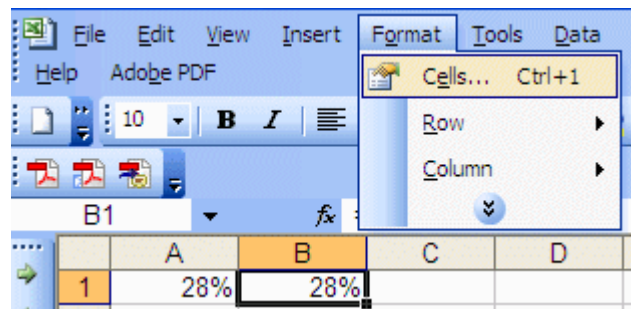- Type 28% into cell A1
- press **tab** to move to cell B1

2. We will tell cell B1 that it needs to be equal to cell A1.
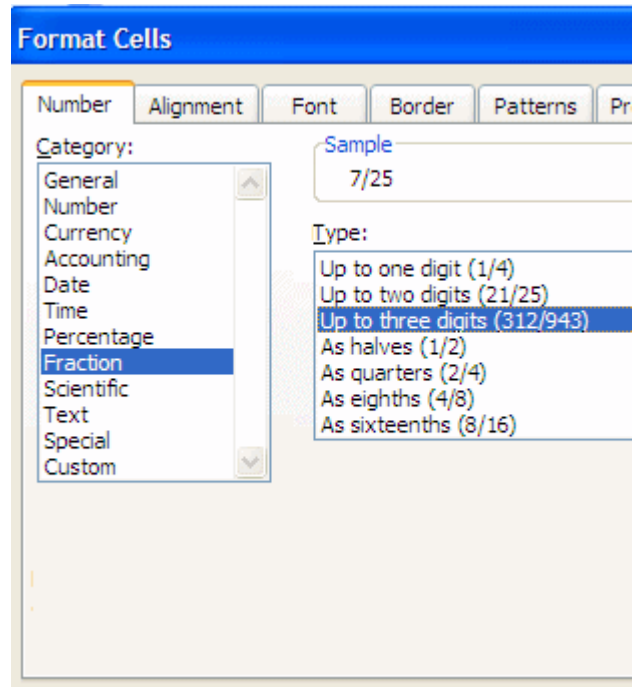- Type "**=A1**" into cell B1
- press "**enter**"

3. Let's tell cell B1 that we want it to show us a fraction in simplest form.
- Click cell "**B1**"
- Choose "**Format**" from the menu bar
- Choose "**Cells**"
- The Format Cells wizard will appear.

4. The Format Cells wizard is showing us that we are formatted as a percentage.
- We want to change that to "**Fraction**"
- In the "**Type**" area we want to change it to "**Up to three digits**"
- Click "**OK**" to apply the changes to the cell.

5. We will tell cell C1 that it needs to be equal to cell A1.
- Type "**=A1**" into cell C1
- press "**enter**"

6. Let's tell cell C1 that we want it to show us a decimal.
- Click cell "**C1**"
- Choose "**Format**" from the menu bar
- Choose "**Cells**"
- The Format Cells wizard will appear.

Extension 8. 7 - Excel - Formatting Percents and Fractions

7. The Format Cells wizard is showing us that we are formatted as a percentage.

- We want to change that to "**General**"
- General Formatting will produce a decimal response when appropriate.
- Click "**OK**" to apply the changes to the cell.

Format Cells

| Number | Alignment | Font | Border | Patterns | Pr |

Category:
- General
- Number
- Currency
- Accounting
- Date
- Time
- Percentage
- Fraction
- Scientific

Sample
0.28

General format cells have no specific number format.

8. The correct answer to #1 on your workbook page is in cell B1.
Write $^7/_{25}$ on your workbook now and proceed to the next step.

9. Your homework has a total of 15 problems that you will require you to change a percentage into a fraction or a decimal. We will copy the template down ("fill down") for the 15 problems and then you can let Excel do the rest of your work!

- Select cells "**B1**" and "**C1**" then drag to the 15th row so that you have a highlighted rectangle as shown on the right.

B1	▼	f_x =A1

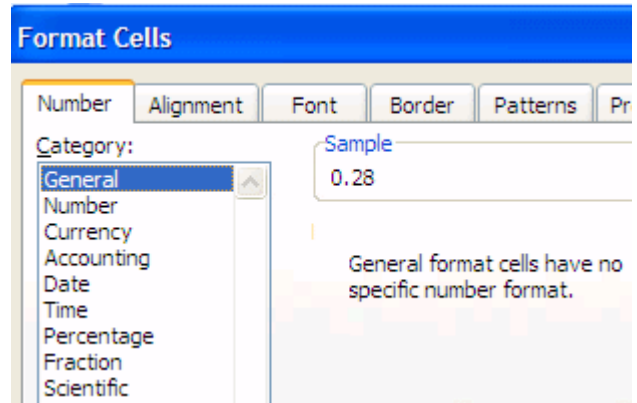|	A	B	C
1	28%	7/25	0.28
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

10. We will fill down using a keyboard shortcut.

- Hold the control button "**Ctrl**" down
- Press "**D**"
- You have completed the "**Edit**" -> "**Fill Down**" process using a keyboard shortcut.

11. In cell "A2" we will type problem 2.

- Type "**63%**"
- Press "**Enter**"
- The answer to #2 is in cell "**B2**"!

12. Finish your workbook page and enjoy your new skill!

Name_____

Extension 8. 8 - Use Excel to Order Numbers

Today we will be using Microsoft Excel to order percents, decimals and fractions.

1. We will put the numbers in ascending order (least to greatest)
The first problem is 45% ; $^{21}/_{50}$; 0.43
Let's type this problem into Excel.

- In cell "**A1**" type "**45%**" and press "**enter**" to move to cell A2
- In cell "**A2**" type "**+21/50**" and press "**enter**" to move to cell A3
- In cell "**A3**" type "**0.43**" and press "**enter**" to move to cell A4

2. Cell A2 was supposed to be the fraction $^{21}/_{50}$ but Excel used a general formatting rule to convert it to a decimal. We need to tell Excel that cell A2 should be shown as a fraction.
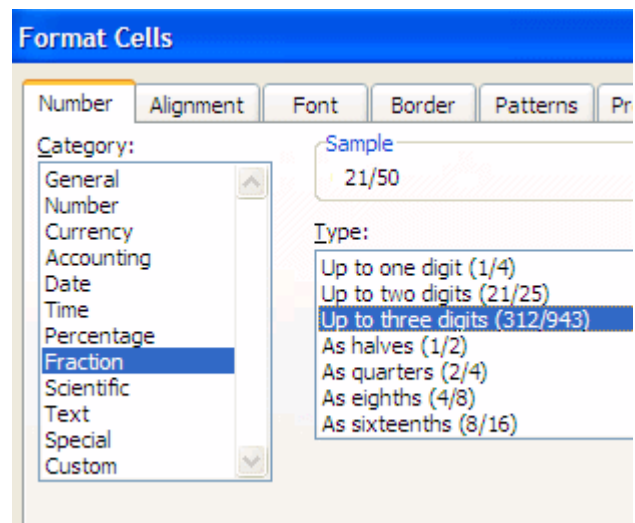
- Click cell "**A2**"
- Choose "**Format**" from the menu bar.
- Click "**Cells**" to open the Format Cells wizard.
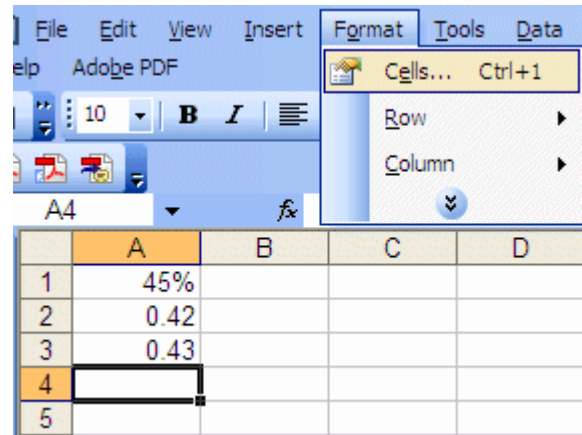
3. We will change the format from General to Fraction up to three digits.

- Click "**Fraction**"
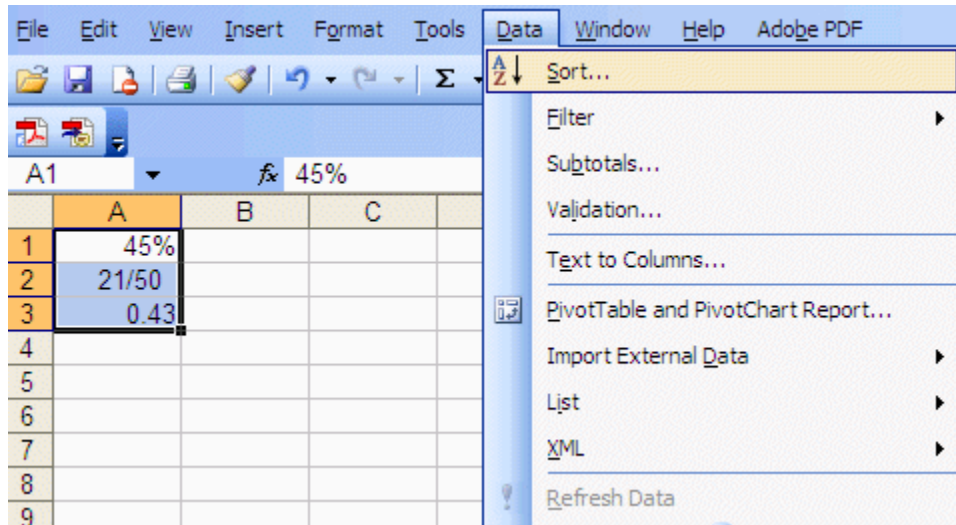- Click "**Up to three digits**"
- Click **OK** to apply the format change to the cell.

4. Now we can put them in ascending order (least to greatest).

- Highlight all three cells as shown.

Extension 8. 8 - Use Excel to Order Numbers

5.

- Choose "**Data**" from the menu bar.
- Click "**Sort**" to open the Sort wizard.

6. The default sorting method is "**Ascending**" so we do not need to change that. **But** we want to get rid of the "**Header Row**" so that Excel will sort all of the data.
- Click the radio button next to "**No header row**"
- Choose "**OK**" to apply the sorting to the cells.

7. Your answers are now sorted from least to greatest and are ready to be recorded!

8. The next problem is $^7/_8$; 90% ; 0.098
Always type the fraction onto the fraction so that you don't have to reformat the cell.
- In cell "**A1**"type "**+7/8**" and press "**enter**" to move to cell A2
- Cell "**A3**" is formatted for percents so click cell A3 and type "**90**"
- press "**enter**" to move to cell A4
- In cell "**A2**" type "**0.098**" and press "**enter**" to move to cell A3
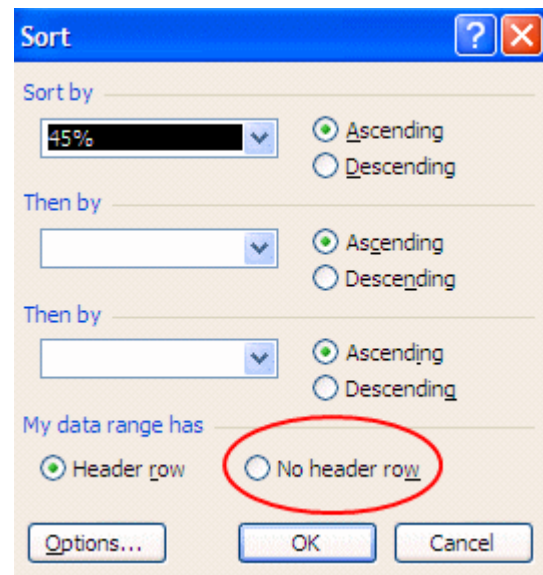
9. Now we can put them in ascending order (least to greatest).
Highlight all three cells.
- Choose "**Data**" from the menu bar.
- Click "**Sort**" to open the Sort wizard.
- Make sure to click the "**No header row**" on the sorting wizard!
- Press "**OK**" to sort the values.

10. Use the quiz @ http://www.math6.org/ratios/order_quiz.htm to continue practicing your skill.