

**Excel & Business Math**  
**Video/Class Project #10**  
**Division, Fractions, Decimals, Percentages**

**Topics**

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## 2) Rules For Percentages

### Rules for Percents

- ① Percents are NOT Numbers!!
- ② Percents are formatted, symbolic representations of numbers.
- ③ How to format/convert a number to a percent:

①st multiply number by 100  
or  
slide decimal two places to right

②nd Add the "% " symbol  
to end of number

Example: Format 0.06 as a Percent

①st  $0.06 * 100 = 6.0$   
or  
 $0.06 \Rightarrow 6.0$

②nd 6%

Because  $0.06 \neq 6$   
we know a percent is not a number, but rather a formatting.

- ④ The meaning of a Percent is:  
"How many parts in 100?"

"6 parts for every 100 parts" = 6%

### 3) Examples of Division-Fraction-Decimal-Percentages:

Examples of Division-Fraction-Decimal-Percent

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$$6 \div 100 = 100 \overline{)6} = \frac{6}{100} = 0.06 \Rightarrow 6\%$$

$$100 \div 100 = 100 \overline{)100} = \frac{100}{100} = 1.00 \Rightarrow 100\%$$

$$150 \div 100 = 100 \overline{)150} = \frac{150}{100} = 1.50 \Rightarrow 150\%$$

Pattern to Notice:

$$\left. \begin{array}{l} \frac{6}{100} = 0.06 \Rightarrow 6\% \\ \frac{1}{2} = 0.50 \Rightarrow 50\% \end{array} \right\} \begin{array}{l} \text{Any time the Numerator} \\ \text{is smaller than the} \\ \text{Denominator the answer} \\ \text{is less than 1} \end{array}$$

$$\left. \begin{array}{l} \frac{100}{100} = 1.00 \Rightarrow 100\% \\ \frac{0.06}{0.06} = 1.00 \Rightarrow 100\% \end{array} \right\} \begin{array}{l} \text{Any time the Numerator} \\ \text{is equal to the} \\ \text{Denominator the answer} \\ \text{is equal to 1} \end{array}$$

$$\left. \begin{array}{l} \frac{150}{100} = 1.50 \Rightarrow 150\% \\ \frac{10}{2} = 5.00 \Rightarrow 500\% \end{array} \right\} \begin{array}{l} \text{Any time the Numerator} \\ \text{is bigger than the} \\ \text{Denominator the} \\ \text{answer is} \\ \text{bigger than 1} \end{array}$$

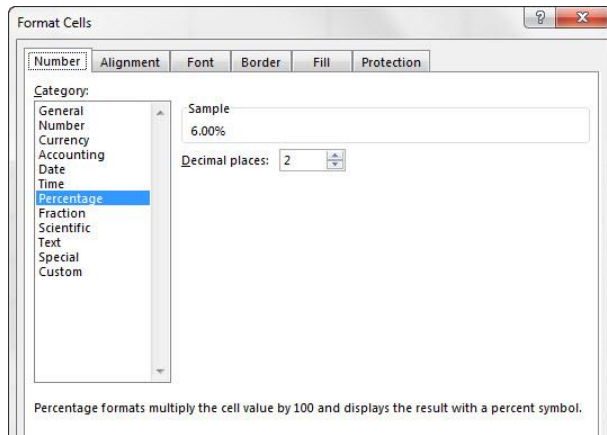
## 4) Number Formatting for Decimals, Percentages & Fractions

### i. Decimal Number Format

1. To show all decimals, use General Number Formatting (No applied Number Format)

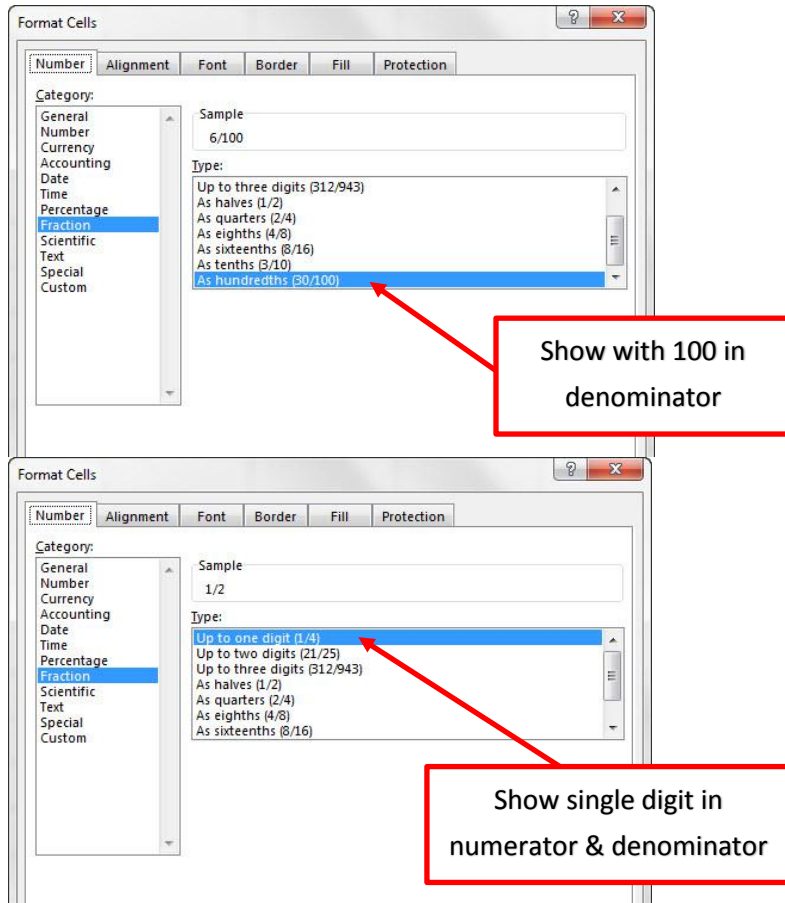
### ii. Percentage Number Format

1. It will display the number as a Percentage while keeping the underlying number in the cell
2. Example of Percentage Number Format from the Format Cells Dialog Box, Number Tab:



### iii. Fraction Number Format

1. It will display the number as a Fraction while keeping the underlying number in the cell
2. Example of Fraction Number Format from the Format Cells Dialog Box, Number Tab:



## 5) Percentage Number Formatting Pitfalls

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Percentage Number Format Pitfalls												
2													
3	Situation 1:	Type .02 in cell, then add % format	2.00%	<<== If you type 0.02, then add Percentage Number Format you get 2%									
4	Situation 2:	Type 2 in cell, then add % format	200.00%	<<== If you type 2, then add Percentage Number Format you get 200%									
5	Situation 3:	Add % format FIRST, then type 2, Enter	2.00%	<<== If you pre-format the cell, you can type either 2 or 0.02 and you will get 2%									
6	Situation 4:	Add % format, FIRST then type .02, Enter	2.00%	<<== If you pre-format the cell, you can type either 2 or 0.02 and you will get 2%									
7	Situation 5:	Add % format as you type	2.50%	<<== You can type a percentage from scratch, and Excel will automatically add Percentage Number Format									
8	Situation 6:	Type .025, then add % from ribbon	3%	If you type 0.025 and the use % button in Ribbon, Excel will add Percentage Number Format with Zero Decimals Showing									

## 6) Examples of Math with Percentages or Decimals

	A	B	C	D	E
11	<b>Math Percentage Example 1: Calculate Deduction with Decimal or Percentage</b>				
12					
13	Tax Rate		6.20%		
14					
15	Employee	Gross Pay	FICA Tax Deduction		
16	Eden Land	2242.87	139.06		=ROUND(B16*\$B\$13,2)
17	Deandra Boss	2230.7	138.3		
18	Leora Cruse	3021.83	187.35		
19	Leena Rainey	2577.4	159.8		
20	Eulalia Pulliam	2251.11	139.57		
21	Verlie Wingate	2850.74	176.75		
22	Daniella Buckner	2553.23	158.3		
23	Basilia Lantz	2827.99	175.34		
24	Kandy Teague	3293.82	204.22		
25	Leann Kaye	2891.3	179.26		
26		<b>Total</b>	1657.95		

	A	B	C	D	E	F
28	<b>Math Percentage Example 2: Math Word Problem</b>					
29	Your goal is to contribute 4.5% of your annual gross earnings to a savings plan.					
30	If your annual gross earnings are \$65,391.50, how much should you contribute to the savings plan?					
31						
32	<b>1) Facts and Formula Inputs:</b>					
33	Annual Gross Earnings	65391.5				
34	% Contribute to Savings Plan	4.50%				
35	"of" is the word that means multiply					
36						
37	<b>2) Goal</b>					
38	Calculate How much to contribute to Savings Plan					
39						
40	<b>3) Solve</b>					
41	Amount Contributed to Savings Plan	\$2,942.62		=B33*B34		
42						
43	<b>4) Check</b>					
44	Amount Contributed to Savings Plan	0.045		=B41/B33		
45						
46	<b>5) Answer in words</b>					
47	My goal is to contribute 4.5% of my total gross earnings (65,391.5) to my savings plan and so the amount I will deposit is \$2,942.62.					