

## Excel & Business Math

### Video/Class Project #22

#### Rate Formula for Common Size Income Statement using Mixed Cell Reference

### Topics

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#### **1) Accounting Terms**

- 1) Revenue = the income coming into the business
  - i. You can think of it like all the cash coming into the business although in Accounting they use something called Accrual Accounting, rather than Cash Accounting
- 2) Expenses = the expenses going out of the business
  - i. You can think of it like all the cash going out of the business although in Accounting they use something called Accrual Accounting, rather than Cash Accounting
- 3) Net Income = Total Revenue – Total Expenses
  - i. In Accounting “Net Income” is the profit or earnings of the company

#### **2) Common Size Income Statement**

- 1) When we express each item in an Income Statement as a percentage of Revenue (using the Rate Formula), we can think of the resulting percentage in these terms:
  - i. For Every \$1 Revenue, How Many Pennies go to each Item?
  - ii. For Every \$1 that comes into Cash Register, How Many Pennies Went to Each Item?
  - iii. The term “Common Size” refers to the fact that we can compare the percentage from one company to another without worrying about the relative size of each company’s accounts.

### 3) Cell References in Formulas

#### 1) Example of Cell Reference: A1

- i. Column reference = A
- ii. Row reference = 1

#### 2) Copying formulas with Cell References:

- i. When we copy a formula that contains cell references, we need to consider whether we need: Relative, Absolute, Mixed with the Column Locked or Mixed with the Row Locked.
- ii. If you will not copy the formula, there is no need to consider what type of cell reference it will be.

#### 3) Four Basic Types of Cell References (Relative, Absolute, Mixed Column Locked, Mixed Row Locked):

##### i. Relative Cell References – Example: A1

- No dollar signs
- Moves relatively throughout the copy action.
- Relatively means that if the formula is looking at a cell reference that is three cells to the left, when you copy the formula to any other cell, the cell reference will still be looking three cells to the left.

##### ii. Absolute Cell References – Example: \$A\$1

- Dollar signs before both:
  - i. Column reference = A
  - ii. Row reference = 1
- Absolute means that if the formula is looking at a particular cell reference, when you copy the formula to any other cell, the cell reference will still be looking at that particular cell reference. If the absolute cell reference is \$A\$1, the formula will always look at cell A1. It is as if the formula is locked on the cell A1 throughout copy action.

##### iii. Mixed Cell References with Row Locked – Example: A\$1

- Dollar sign before row reference only.
- Remains absolute or locked when copying across the rows, vertically (up and down).
- Moves relatively when copying across the columns, horizontally (side to side).

##### iv. Mixed Cell References with Column Locked – Example: \$A1

- Dollar sign before column reference only.
- Remains absolute or locked when copying across the columns, horizontally (side to side).
- Moves relatively when copying across the rows, vertically (up and down).

#### 4) Keyboard to Toggle Cell References = F4 Key.

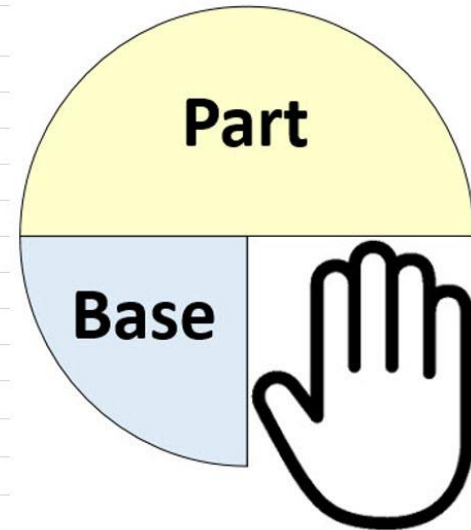
- i. F4 key = If cursor is touching a cell reference in a formula while in edit mode, F4 toggles between the four basic types of cell references.

#### 5) Why do we use Mixed Cell References:

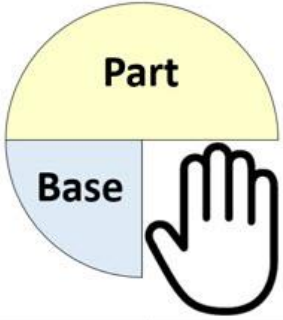
- i. BECAUSE THEY SPEED UP FORMULA CREATION TIME!!!
- ii. For a 12 month budget, using Mixed Cell References will allow you to create your formula 12 times faster than someone who only used Relative and Absolute Cell References.

#### 4) Video Example #1:

	A	B	C	D	E	F	G	H	I	J	K
1											
2	<b>Caterpillar Inc. (CAT) Income Statement</b>				For Every \$1 Revenue, How Many Pennies go to Item?						
3	All numbers in thousands										
4		<b>12/31/2014</b>	<b>12/31/2015</b>		<b>12/31/2014</b>	<b>12/31/2015</b>					
5	Total Revenue	\$55,506,000	\$47,172,000		100.00%	100.00%					
6	<b>Expenses:</b>										
7	Cost of Goods Sold	\$41,342,000	\$34,133,000		74.48%	72.36%					
8	Research Development	2,380,000	2,119,000		4.29%	4.49%					
9	Selling, Marketing and Administrative	8,148,000	6,974,000		14.68%	14.78%					
10	Interest Expense	484,000	507,000		0.87%	1.07%					
11	Income Tax Expense	692,000	916,000		1.25%	1.94%					
12	Other Expense	8,000	11,000		0.01%	0.02%					
13	Total Expenses	\$53,054,000	\$44,660,000		95.58%	94.67%					
14	Net Income (Profit)	\$2,452,000	\$2,512,000		4.42%	5.33%					
15											
16											



## 5) Video Example #2:

	A	B	C	D	E	F	G	H	I	J
1								Denominator uses a Mixed Cell Reference with the Row Locked, but not the Column		
2	<b>Amazon.com, Inc. (AMZN) Income Statement</b>				For Every \$1 Revenue, How Many Pennies go to Item?					
3										
	All numbers in thousands									
4		12/31/2015	12/31/2016		12/31/2015	12/31/2016		<b>Formulas:</b>		
5	Total Revenue	\$107,006,000	\$136,081,000		100.00%	100.00%		=B5/B\$5	=C5/C\$5	
6	<b>Expenses:</b>				0.00%	0.00%		=B6/B\$5	=C6/C\$5	
7	Cost of Goods Sold	\$71,651,000	\$88,265,000		66.96%	64.86%		=B7/B\$5	=C7/C\$5	
8	Research Development	0	0		0.00%	0.00%		=B8/B\$5	=C8/C\$5	
9	Selling, Marketing and Administrative	33,122,000	43,536,000		30.95%	31.99%		=B9/B\$5	=C9/C\$5	
10	Interest Expense	459,000	484,000		0.43%	0.36%		=B10/B\$5	=C10/C\$5	
11	Income Tax Expense	950,000	1,425,000		0.89%	1.05%		=B11/B\$5	=C11/C\$5	
12	Other Expense	228,000			0.21%	0.00%		=B12/B\$5	=C12/C\$5	
13	Total Expenses	\$106,410,000	\$133,710,000		99.44%	98.26%		=B13/B\$5	=C13/C\$5	
14	Net Income	\$596,000	\$2,371,000		0.56%	1.74%		=B14/B\$5	=C14/C\$5	
15										
16					For Every \$1 that comes into Cash Register, How Many Pennies Went to Each Item?					
17										
18										
19										
20										
21										
22										
23										