

Ratios can be Tricky

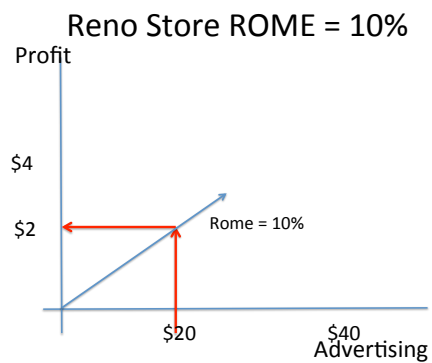
Ted Mitchell

Rewarding Return on Investment

- You have two stores. One in Reno and one in Sparks. You want to reward the store manager who makes the best use of his marketing budget to generate profit.

Return on Marketing “Investment”

- Roy has spent \$20k in advertising and has made a profit of \$2k in your Reno store.
- What is Roy’s return on marketing expense?
- $\text{ROME} = \text{PROFIT}/\text{EXPENSE}$
- $\text{ROME} = \$2/\$20 = 0.10 = 10\%$

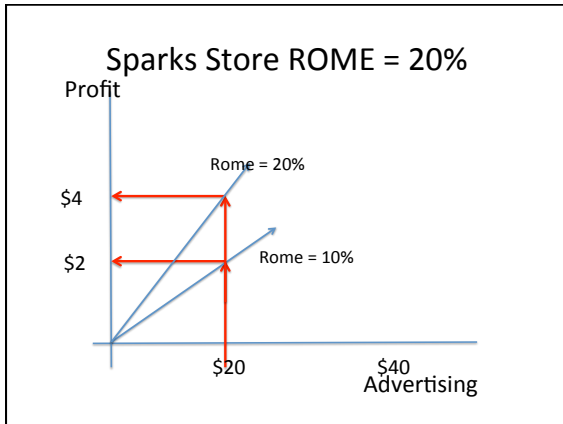


In general we see that

- Return on Investment = Profit/Investment
- The key equation is
- Profit = Return on Investment x Investment
- Profit = (Profit/Investment) x Investment
- $Z = (Z/I) \times I$

Return on Marketing “Investment”

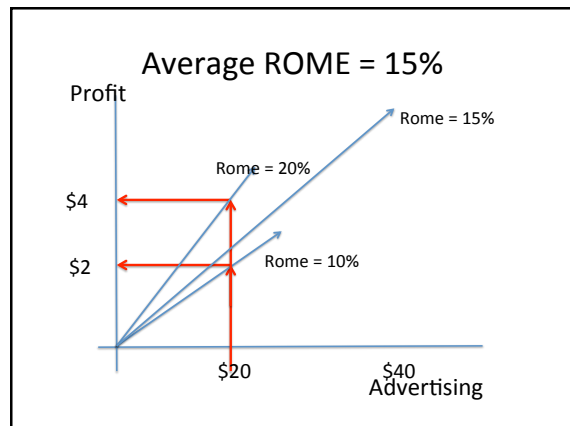
- Sam has spent \$20k in advertising and has made a profit of \$4k in your Sparks store.
- What is Sam’s return on marketing expense?
- $\text{ROME} = \text{PROFIT}/\text{EXPENSE}$
- $\text{ROME} = \$4/\$20 = 0.20 = 20\%$



- Looks like the Sparks store at 20% is more efficient at making profits than the Reno Store at 10%!

Return on Marketing “Investment”

- You have made a ROME of 10% in Reno and a ROME of 20% in Sparks. What is your average return per store?
- $ROME = \text{PROFIT} / \text{EXPENSE}$
- The **Answer is**
- **Average return per store is 15%**



- Looks like Sparks store is more efficient at making profits than the average store!

- Hand In Your Answers to the following Problem for Participation Points

Let's Try Productivity

- Every salesperson in your call center must make 20 calls per day. You want to reward the person who has the highest average productivity over two days. Tom and Sally are your top two producers.

Tom's Average Productivity

- Tom makes 10 calls for each sale on Monday and makes 5 calls per sale on Tuesday. What is Tom's average rate of productivity over the two days?
- A) 15 calls per sale
- B) 7.5 calls per sale
- C) 6.67 calls per sale
- D) not enough information to calculate

Sally's Average Productivity

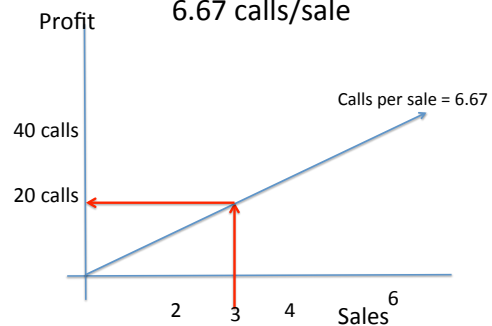
- Sally has to make 6.667 calls for each sale on Monday and makes 6.667 calls per sale on Tuesday. What is Sally's average rate of productivity over the two days?
- A) 13.334 calls per sale
- B) 7.5 calls per sale
- C) 6.67 calls per sale
- D) not enough information to calculate

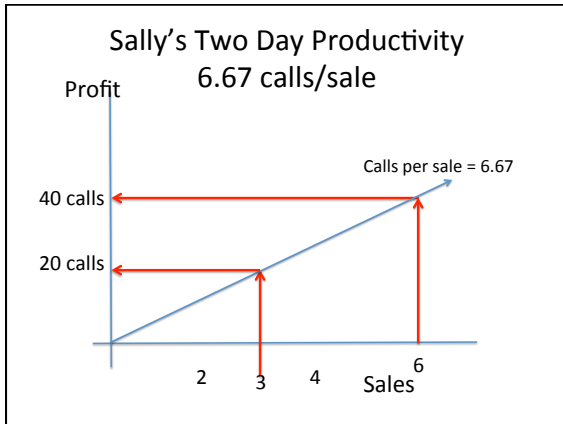
- Which person has the highest productivity over the two days and gets the bonus?
- A) Tom
- B) Sally
- C) Both have the same productivity
- D) Not Enough Information to Calculate

The Correct Answer is

- Which person has the highest productivity over the two days and gets the bonus?
- A) Tom
- B) Sally
- **C) Both have the same productivity at 6.67 calls per sale**
- D) Not Enough Information to Calculate

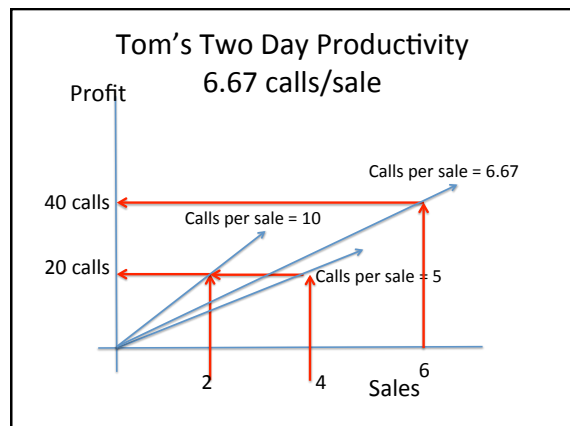
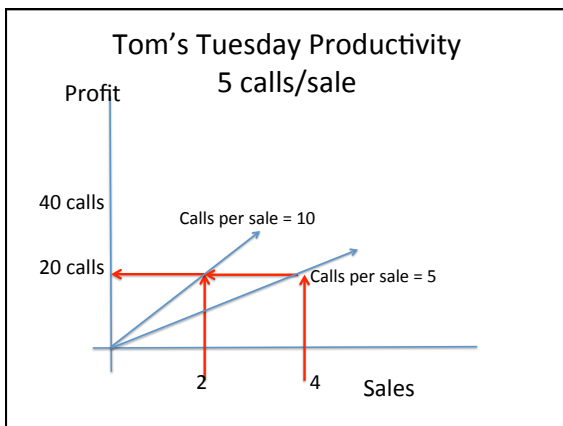
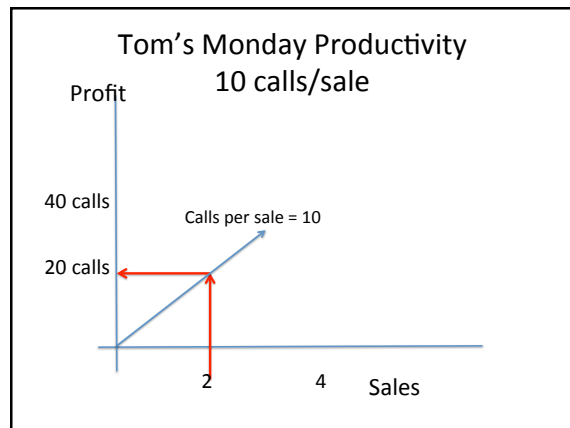
Sally's Monday Productivity 6.67 calls/sale





- Sally made an average of 20 calls per day with an average of 3 sales per day for an average productivity of
- $20/3 = 6.67$ calls per sale

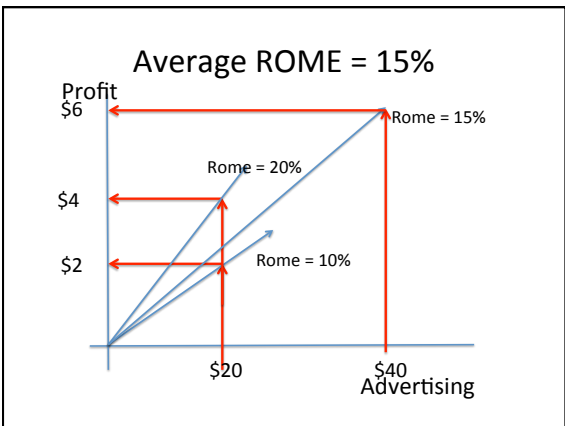
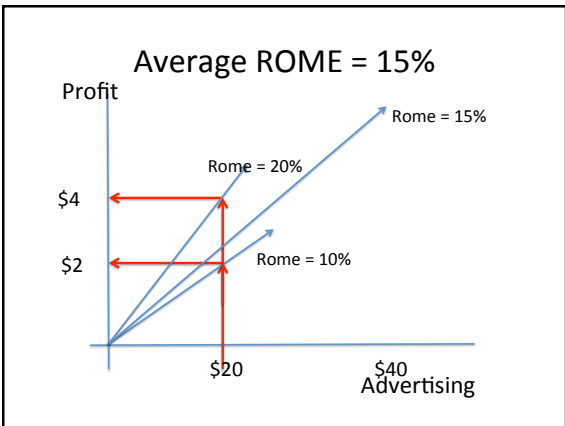
Check Tom's productivity



- Tom made an average of 20 calls per day with an average of 3 sales per day for an average productivity of
- $20/3 = 6.67$ calls per sale

- ### Key Learning Point
- “Common Sense” Can lead you astray!
 - You can get into Big Trouble taking the averages of rates and ratios
 - For example: How did you actually solve the first lecture problem?

- ### Rewarding Return on Investment
- You have two stores. One in Reno and one in Sparks. You want to reward the store manager who makes the best use of his marketing budget to generate profit.



- The average advertising expense in each of the two stores was \$20,000 and the average profit in each of the two stores was \$3,000 and the average return on marketing expense was
- $$\text{ROME} = \$3k / \$20k = 0.15 = 15\%$$

Key Learning Point

- **Don't take the average of the ratios**
- Start with the full set of numbers and take the average of the component parts
- Remember the basic equation
- Profit = Return on "investment" x Investment
- Store 1: \$2k = 10% x \$20k
- Store 2: \$4k = 40% x \$20k
- **Average profit = ROME x Average Investment**
- Average store = \$3k = ROME x \$20k
- Average ROME = \$3k/\$20k = 15%

- Do A Third Example for Participation

Market Share is a ratio:
 (Firm's sales)/(total industry sales)

- There is a total of 5 firms in your industry. Your share is 15% of the industry sales
- Competitor A has 10% market share
- Competitor B has 5% market share
- **What is the average market share in the industry?**
- A) 10%
- B) 20%
- C) Not enough Information to solve

The Correct Answer is

There is a total of 5 firms in your industry. Your share is 15% of the industry sales

- Competitor A has 10% market share
- Competitor B has 5% market share
- What is the average market share in the industry?
- A) 10%
- **B) 20%**
- C) Not enough Information to solve

- If you had the market shares for all 5 firms, then you could add them up to 100% and divide by 5 and get an
- average market share $100\%/5 = 20\%$

Second Learning Point

- Market Share is a Ratio
- Market Share Ratios of all the firm's have to add up to 100%
- If I know there are **N** firms in the industry, **then I must know that the Average Market Share = 1/N**
- $1/(\text{five firms}) = 1/5 = 0.20 = 20\%$

Other Observations

- In Example 1:
- the average ROME was $\$3/\$20 = 15\%$
- The firm's total ROME was $\$6/\$40 = 15\%$
- In Example 2:
- Tom's average productivity per day was $20/3 = 6.67$ calls per sale
- Tom's total productivity was
- $40/6 = 6.67$ calls per sale

- Fourth Example for Participation

Fourth Example

- A firm has a return on marketing "investment" of 12%.
- It gets all its profit from 3 different stores.
- **What is the average ROME for the three stores?**
- A) $1/3 = 33\%$
- B) $12\%/3 = 4\%$
- B) 12%
- C) Not enough information to calculate

The Correct Answer is

- A firm has a return on marketing "investment" of 12%.
- The firm gets its profit from 3 different stores
- What is the average ROME for the three stores?
- A) $1/3 = 33\%$
- B) $12\%/3 = 4\%$
- **C) 12%**
- D) Not enough information to calculate

Key Learning Point

- Don't find the average rate by assuming you can add up all the individual rates and divide by the number in the population.
- Sometimes it works and sometimes it doesn't
- Look at the whole of the component parts in the total equation
- $Z = (Z/E) \times E$

Key Ratios

- Markup on Price, $M_p = (P-V)/P$
- Return on Investment, $ROI = Z/I$
- Return on Sales, $ROS = Z/R$
- Return on Marketing Expense = MC/ME
- Marketing Return on Sales = MC/R