3 Percent

3.3   Percent of Increase and Decrease

3 Percent

EXAMPLES of everyday Uses of Percent of Increase and Percent of Decrease:

- **Used to compare current expenses, costs, sales and profits from previous months or years.**

- **Percent of increase in your salary when you receive a pay raise.**

3.3 Percent of Increase and Decrease

OBJECTIVES

- **Find the increase and the percent of increase.**

- **Find the increase and the total when the percent is given.**

3 Formula

Amount of Increase = Large number minus smaller number

Percent of Increase = Amount of Increase ÷ Previous Amount

3.3 Percent of Increase and Decrease

OBJECTIVES

- Find the decrease and the percent of decrease.

- Find the decrease and the total when the percent is given.

- Determine percentage distribution.

PERCENT OF INCREASE

Percent of increase, amount of increase, and previous amount relate to Rate, Part and Base.

Part = Base x Rate

Part ÷ Base = Rate

AMOUNT OF INCREASE

Example

Find the amount of increase.
Sales this year: $800,120
Sales last year: $620,125

STEPS

$800,120

– 620,125
_____

$179,995

AMOUNT OF INCREASE

PERCENT OF INCREASE

Example

Use the preceding example—sales this year, $800,120; sales last year, $620,125; amount of increase, $179,995—to find the percent of increase.

STEPS

PART = BASE x RATE

Part ÷ Base = Rate

$179,995 ÷ $620,125 = 0.29

100 × 0.29 = 29% **PERCENT OF INCREASE**

Example

Ally Dazai earned 15% more this year than last. If her earnings last year were $24,600, find her earnings for this year.

STEPS

Identify each element. Base = $24,600; Rate = 15%

Part = Base × Rate = $24,600 × 15%

= $24,600 × 0.15 = $3,690

$24,600

+ 3,690
_____

$28,290

Example

Ally Dazai earned 15% more this year than last. If her earnings last year were $24,600, find her earnings for this year.

STEPS – Alternate Method

Add 100% to the rate.
15% + 100% = 115%

Multiply the sum by the base.
$24,600 × 115% = $24,600 × 1.15 = $28,290

PERCENT OF DECREASE

Example

Sales this year were $127,430. Sales last year were $145,507. Find the percent of decrease in sales.

STEPS

Find the decrease by subtracting the current amount from the previous amount.

$145,507 − 127,430 = $18,077

Rate = Part ÷ Base
Rate = $18,077 ÷ $145,507
Rate = 0.1242
0.1242 × 100 = 12.4%

Example

Greene College's enrollment of 8,425 declined by 8%. What was the total college enrollment after the decline?

STEPS

Part = Base × Rate

8,425 × 8% = 8,425 × 0.08 = 674

Subtract the decrease from the base.

8,425 – 674 = 7,751

Example

First Electronic laid off 15% of its 580 employees. How many people are currently employed by First Electronic?

STEPS

Problem Solving Plan

Clues	Action Plan	Solve
Base is 580.	Change the percent to a decimal.	$15\% = 0.15$
Rate is 15%.	Subtract the result from 1.00.	$1.00 - 0.15 = 0.85$
People laid off is the part.	Multiply the base by the result.	$P = 580 \times 0.85$
People currently employed is complement of the part.		$P = 493$

Conclusion

493 people are currently employed by First Electronic.

PERCENTAGE DISTRIBUTION

Example

Complete the table below.

Departments	Sales	Percent
Hosiery	$2,937	_____
China	5,845	_____
Stationery	2,432	_____
Boys' Wear	6,079	_____
Total Sales	$17,293	100%

STEPS

↓ Total the column.

Departments	Sales	Percent	
Hosiery	$2,937	17.0	2,937 ÷ 17,293 = 0.1698 = 17.0%
China	5,845	33.8	5,845 ÷ 17,293 = 0.3379 = 33.8%
Stationery	2,432	14.1	2,432 ÷ 17,293 = 0.1406 = 14.1%
Boys' Wear	6,079	35.1	6,079 ÷ 17,293 = 0.3515 = 35.2%*
Total Sales	$17,293	100%	

↑ Divide each department amount by the total sales.

Example

Find the amount of increase or decrease and the percent increase or decrease.

	A	B	C	D	E
3		Tunnell Consulting			
4	Category	1st Quarter	2nd Quarter	$ Increase/Decrease	% Increase/Decrease
5	Income				
6	Consulting Fees	$12,000.00	$10,500.00	-$1,500.00	-12.50%
7	Expenses				
8	Salaries	$2,400.00	$2,400.00	$0.00	0.00%
9	Office Supplies	$178.00	$125.00	-$53.00	-29.78%
10	Payroll Taxes	$300.00	$300.00	$0.00	0.00%
11	Rent	$975.00	$975.00	$0.00	0.00%
12	Telephone	$45.00	$52.00	$7.00	15.56%
13	Total Expenses	$3,898.00	$3,852.00	-$46.00	-1.18%
14	NET INCOME	$8,102.00	$6,648.00	-$1,454.00	-17.95%

STEPS

For Cell D6: =C6-B6

Copy the formula into Column D.

Example

Find the amount of increase or decrease and the percent increase or decrease.

	A	B	C	D	E
3			**Tunnell Consulting**		
4	**Category**	**1st Quarter**	**2nd Quarter**	**$ Increase/Decrease**	**% Increase/Decrease**
5	**Income**				
6	Consulting Fees	$12,000.00	$10,500.00	-$1,500.00	-12.50%
7	**Expenses**				
8	Salaries	$2,400.00	$2,400.00	$0.00	0.00%
9	Office Supplies	$178.00	$125.00	-$53.00	-29.78%
10	Payroll Taxes	$300.00	$300.00	$0.00	0.00%
11	Rent	$975.00	$975.00	$0.00	0.00%
12	Telephone	$45.00	$52.00	$7.00	15.56%
13	**Total Expenses**	$3,898.00	$3,852.00	-$46.00	-1.18%
14	NET INCOME	$8,102.00	$6,648.00	-$1,454.00	-17.95%

STEPS

For Cell E6: =D6/B6

Copy the formula into Column E.

Example

Find the percentage distribution.

	A	B	C
3	Lou's Department Store		
4	**Department**	**Sales**	**Percent**
5	Hosiery	$2,937.00	16.98%
6	China	$5,845.00	33.80%
7	Stationery	$2,432.00	14.06%
8	Boys' Wear	$6,079.00	35.15%
9	**Total Sales**	$17,293.00	100.00%

STEPS

For Cell C5: =B5/B9
Copy the formula into Column C.