1

Math Basics
Pg. 65 of Outline

- 1. Units of Measurement

- a. 1 foot = 12 inches
- b. 1 yard = 3 feet
- c. 1 rod = 16.5 feet
- d. 1 mile = 5,280 feet
- e. 1 square foot = 144 square inches
- f. 1 square yard = 9 square feet

2

Math Basics

To convert Square Feet to Square Yards ÷ by 9

- 1. Units of Measurement

- g. 1 square rod = 30.25 square yards
- h. 1 township = 36 sections
- i. 1 section = 1 square miles
- j. 1 square mile = 640 acres
- k. 1 acre = 43,560 square feet
- l. area = π x radius2
- m. 360 degrees = 1 circle
- n. 90 degrees = ¼ circle

3

Math Basics

- 2. Converting Fractions to Decimals

- a. 1/2 = .5
- b. 3/5 = .6
- c. 1 4/7 = 1.571
- d. 25 7/8 = 25.875

4

Math Basics

- 3. Converting Decimals to Percentages
- a. .15 = 15%
- b. .456 = 45.6%
- c. 34.5 = 3450%
- d. 3.7 = 370%
- e. .00123 = .123%

5

Math Basics

- 4. Converting Percentages to Decimals
- a. 25% = .25
- b. 4% = .04
- c. 2.5% = .025
- d. 200% = 2.0

6

Math Basics

- 5. Add, Subtract, Multiply, Divide Decimals
- a. .23 + 0.402 + .9 = 1.532
- b. 65.9 – 0.005 = 65.895
- c. .99 x .0652 = .064548
- d. 2.14 ÷ .02 = 107

7

Problems Involving Rates

Formulas:

- The Whole X Rate = Part
- The Part ÷ The Whole = Rate
- The Part ÷ The Rate = Whole

8

Problems Involving Rates

The Whole X Rate = Part

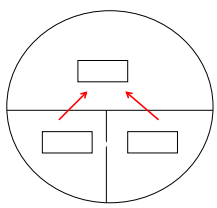
If you sell a house for $180,000 and the office receives a 7% commission, how much commission do you receive?

Whole X Rate = Part

180000 X .07 = 12600

9

Problems Involving Rates



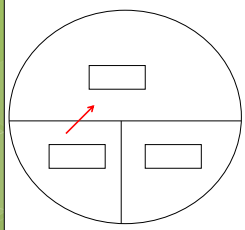
Formulas:

The Part ÷ The Whole = Rate

The Part ÷ The Rate = Whole

10

Problems Involving Rates



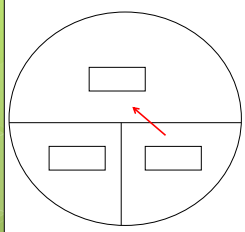
You receive $12,600 commission on a sale of $180,000. What was the commission rate?

Part ÷ Whole = Rate

12600 ÷ 180000 = .07

11

Problems Involving Rates



You receive $12,600 commission. The Rate was 7%. What was the Sales Price?

Part ÷ Rate = Whole

12600 ÷ .07 = 180000

12

Simple Interest

Must Add the Time Factor

100,000 @ 8% 1 Year= 8,000

Principal *Whole*

Rate *Rate*

Time

Interest *Part*

Whole Rate Part

$$Principal \times Rate \times Time = Interest$$

13

100000 @ 8% 1 Year= 8000

Principal | Rate | Time | Interest

Whole Rate Part

$$Principal \times Rate \times Time = Interest$$

100,000 x .08 x 1 yr. = 8,000

100,000 x .08 x 2 yrs. = 16,000 etc.

14

Math Basics

At the end of one year you pay $8,000 in interest. The rate you borrowed the funds at was 8%. How much did you borrow?

15

Math Basics

Part

Whole

$$\frac{Interest}{Rate \times Time} = Principal$$

Rate

8,000÷.08 ***(.08 x 1 yr.)*** **=100,000**

16

Math Basics

At the end of one year you pay $8,000 in interest on $100,000 that you borrowed. At what Rate did you borrow the money?

17

Math Basics

$$\frac{\text{Interest}}{\text{Principal} \times \text{Time}} = \text{Rate}$$

8,000 ÷100,000 ***(100000 x 1 yr.)*** **= .08**

18

Math Basics

At the end of two years you pay $8,000 in interest on $100,000 that you borrowed. At what Rate did you borrow the money?

19

Math Basics

$$\frac{\text{Interest}}{\text{Principal} \times \text{Time}} = \text{Rate}$$

8,000 ÷200,000 ***(100000 x 2 yr.)*** **= .04**

20

Math Basics

You pay $8,000 in interest on $100,000 that you borrowed at 8%. How long did you borrow the money?

21

Math Basics

$$\frac{\text{Interest}}{\text{Principal} \times \text{Rate}} = \text{Time}$$

8,000÷8,000 ***(100000 x .08)*** **= 1**

?

22

Math Basics

Area & Volume

Area of Rectangle = **LENGTH x WIDTH**

Area of Triangle = **½ (BASE x HEIGHT)**

Volume of rectangular prism = **LENGTH x WIDTH x HEIGHT**

Volume of triangular prism = **½ (BASE x HEIGHT x WIDTH)**

23

Math Basics

Income Approach Appraisal:

$$\text{Value} = \frac{\text{NET INCOME}}{\text{Capitalization Rate}}$$

24

Math Basics

Cost Approach Appraisal:

Replacement cost – DEPRECIATION +Land value = Estimated property value

25

Math Basics

Straight-line Method of Computing Depreciation

Annual depreciation charge = REPLACEMENT COST ÷ Years of useful life

$18,181 per year = $500,000 ÷ 27.5 Years

26

Math Basics

Straight-line Method of Computing

Depreciation Depreciate Rate = 100% ÷ YEARS OF USEFUL LIFE

.0363 = 1 ÷ 27.5 Years

$500,000 X .0363 = $18,181* (per year)

27

Math Basics

Straight-line Method of Computing Depreciation

Total depreciation = percentage of depreciation x BUILDING REPLACEMENT COST

Five Years of Depreciation .0363 X 5 = .181

$90,500 = .181 X $500,000