Math 9 – Chapter 2 Intro
Scale Factors and Similarity

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Date: Feb. 22

Learning Goals

2.1
- I can use personal referents to estimate measurements
- I can convert between SI measurements

2.2
- I can determine the scale factor by which an item was reduced or enlarged
- I can solve for actual measurements using a given scale

2.3
- I can represent a place or object by creating a scale diagram
- I can use scale digrams to determine unknown measurements

2.4
- I can determine whether two triangles are similar
- I can use similarity between triangles to solve problems

Review - Ratios and Proportions

RATIO: a comparison of two or more quantities (measured in the same units)

Example: Chuck works as a cook in a restaurant. His chicken soup recipe contains 11 cups of broth, 5 cups of diced vegetables, 3 cups of rice, and 3 cups of chopped chicken.

a) What is the ratio of vegetables to chicken?

5 : 3

b) What is the ratio of broth to rice?

11 : 3

part-to-part ratios

c) What is the ratio of chicken to the total ingredients in the recipe?

3 : 22

total = 11 + 5 + 3 + 3 = 22

part-to-whole ratio

can be written as:

A FRACTION: $\frac{3}{22}$

A DECIMAL: $3 \div 22 = 0.1\overline{36}$

A PERCENT: $0.1\overline{36} \times 100 = 13.6\%$

PROPORTION: a statement that says two rates or ratios are equivalent

Examples:

$\frac{3}{4} = \frac{6}{8}$ (×2 above, ×2 below)

$12:21 = 4:7$ (÷3 above, ÷3 below)

Finding unknown values:

$x = 7 \times 4$

$= 28$

$\frac{4}{7} = \frac{16}{x}$ (×4 above, ×4 below)

$x = 24 \div 8$

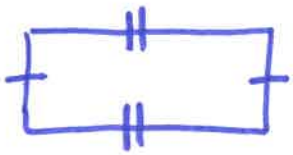
$= 3$

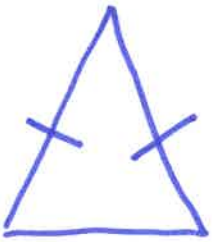
$\frac{x}{4} = \frac{24}{32}$ (÷8 above, ÷8 below)

Review - Working With Diagrams

hash marks: identify sides that are the same length

Examples:





Review - Scale

SCALE: shows relationship between distance on a drawing, model, or map and the actual distance

Examples:

1:200 000

1 unit on map represents 200000 units in the real world.

1cm:2km

1cm on map represents 2km in the real world.