

11. $5x + x = 180$
 $6x = 180$
 $x = 30$
 $5x = 150$

10. The interior \angle and exterior \angle are a linear pair at a vertex. Therefore, their sum is 180° .
 $\frac{360^\circ}{n} = 45^\circ$ (T8-4)
 $n = 8$ sides
 Octagon

9. $2x + 3x = 90^\circ$ | $x = 18^\circ$
 $x = 18^\circ$ | $3x = 54^\circ$
 $5x = 90^\circ$ | $2x = 36^\circ$
 $36^\circ, 54^\circ$

8. 3:2

7. 9:25 (T17-1)

6. $\frac{1\text{m}}{2\frac{4}{3}\text{in}} = \frac{x\text{ km}}{400\text{km}}$
 $x = 400(2\frac{4}{3})$
 $x = 1100\text{km}$

5. $\frac{3}{2}$

4. 18

3. 6

2. 48

1. 5:8

GEOMETRY

The Complete Course

Lesson Seventeen

Ratio, Proportion And Similarity

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Worksheet

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I. VIDEOTAPE FOLLOW-UP QUESTIONS

Ratio, proportion, and similarity

I. Introduction.

II. Ratio.

- A. Definition
- B. Simplest form
- C. Uses
 - 1. Scale factor
 - 2. Trigonometry

III. Proportion.

- A. Definition
- B. Parts of a proportion
 - 1. Means
 - 2. Extremes
 - 3. Geometric mean
- C. Extended
- D. Properties of proportions

IV. Solving problems using ratios and proportions.

- A. In Algebra
- B. In Geometry
- C. Other real-world applications

V. Similar polygons.

- A. Definition
- B. Theorem related to similar polygons: If the scale factor of two similar figures is $a:b$, then the ratio of corresponding perimeters is $a:b$, and the ratio of corresponding areas is $a^2:b^2$. (T 17-1)
- C. Solving problems involving polygons

II. SUPPLEMENTARY EXERCISES

1. If two buildings are 155 meters and 248 meters tall respectively, what is the scale factor of the smaller building to the larger building?

2-4 Solve the following proportions for x:

2. $\frac{5}{12} = \frac{20}{x}$

3. $\frac{4}{x} = \frac{18}{27}$

4. $\frac{3x - 2}{4} = \frac{5x + 1}{7}$

5. If $\frac{a}{8} = \frac{b}{12}$, then $\frac{a}{b} = \underline{\hspace{2cm}}$

6. On a map, one inch = 400 kilometers. How far apart are two cities that measure $2\frac{3}{4}$ inches between them?
7. If the scale factor of two similar figures is 3:5, what is the ratio of their corresponding areas?
8. The ratio of corresponding areas of two similar figures is 81:36. What is the ratio of their perimeters?
9. The acute angles of a right triangle are in a ratio of 2:3. What is the measure of each acute angle?
10. The ratio of the measure of an interior angle of a regular polygon to the measure of an exterior angle is 3:1. Identify the polygon.
11. A linear pair of angles are in a ratio of 5:1. What is the measure of each angle?