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| ***Word Problems Involving Geometry***  **Handout** | **Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |

**Objective: Solving word problems involving geometry**

**Segment 1: Solve word problems involving angles.**

**Complementary angles** are two angles whose measures have the sum 900.



**Supplementary angles** are two angles whose measure has the sum 1800.



**Prealgebra: Vertical angles** are two angles that are on opposite sides of the intersection of two lines.

*Vertical angles have the same measure.*



The **sum** of the measures of the interior angles of a triangle is 1800.



**Prealgebra**

**Example 1:** The angle’s measure is 60 degrees more than that of its complement. Find the angles.

**Example2:** The angle’s measure is 20 degrees more than the triple that of its supplement. Find the angles.

**Example3:** Find the measure of the three interior angles of a triangle if the second is 9 degrees more than five times the first and the third is three times the measure of the first.

3x+13

**Example4:** 5x-25 Find the measure of each angle.

**Practice:** The angle’s measure is 30 degrees more than twice that of its supplement. Find the measure of each angle.

**Practice:** One angle of a triangle is three times as large as another. The measure of the third angle is 30 degrees greater than that of the smallest angle. Find the measure of each angle.

**Practice:** Find the measure of each angle.

6x-30 4x-10

**Elementary Algebra**

**Example 1:** Find two complementary angles such that the measure of the first angle is 20 degrees more than six times the second.

**Example 2:** Find two supplementary angles such that the measure of the first angle is 60 degrees less than twice the second.

**Example 3:** In a triangle, the measure of the second angle is 5 degrees less than the first. The measure of the third angle is 5 degrees less than twice the second. Find the measures of the three angles.

**Practice:** Find two complementary angles such that the measure of the first angle is 25 degrees less than the measure of the second.

**Practice:** Find two supplementary angles such that the measure of the first angle is four times the measure of the second.

**Practice:** In a triangle the measure of the second angle is twice the first. The measure of the third angle is 30 degrees more than the second. Find the measures of the three angles.

**Segment 2: Solve word problems involving perimeter and area.**

The **perimeter** is the sum of the lengths of the sides of a plane geometric figure.

Perimeter of a triangle Perimeter of a rectangle

P = AB + BC + CA P = 2W + 2L

B W

A C L

The **area** of a plane geometric figure, is the number of square unites of area that are contained in the region bounded by the figure.

Rectangle Square

*A = LW A = S2*

Parallelogram Trapezoid

*A = BH A =* 

Triangle Circle

*A =*  Circumference: C = 

Area: 

**Example 1:** The width of a rectangular garden is 30 meters less than twice the length. If it takes 240 meters of fencing to enclose the garden, what are the garden’s dimensions?

**Example 2:** The length of one base of a trapezoid exceeds the other base by 10 meters. If its altitude is 8 meters long and its area is 200 square meters, find the length of each base.

**Example 3:** A rectangular garden whose width is 20 feet has an area of 600 square feet. The lot is surrounded by a path of uniform width of 3 feet. Find the area of the garden and the path combined.

**Example 4:** (Elementary Algebra) The area of a triangle is given by the formula*. Solve for .*

**Practice:** The perimeter of a triangle is 470 centimeters. The length of the longest side is 4 times that of the shortest side, and the length of the third side is 25 centimeters less than that of the longest side. Find the length of each side of the triangle.

**Practice:** Two rectangles have widths of 5 yards and 3 yards each. The length of the first rectangle is 1 yard longer than that of the second rectangle. If the sum of their areas is 61 square yards, determine the length of each rectangle.

**Practice:** (Elementary Algebra) The area of a trapezoid is given by the formula . Solve for .