

## Geometry

### Unit: Geometry Introduction

#### Section: Perpendicular and Parallel Lines

#### Review Worksheet Key

1. What are vertical angles? How do their angle measures compare? If one angle measures 121 and its vertical angle measures  $2x - 5$  degrees, find the value of  $x$ .

When two lines intersect, four angles are created. The angles that are above and below or to the right and left are vertical angles. Their angle measures are equal.

$$121 = 2x - 5$$

$$121 + 5 = 2x - 5 + 5$$

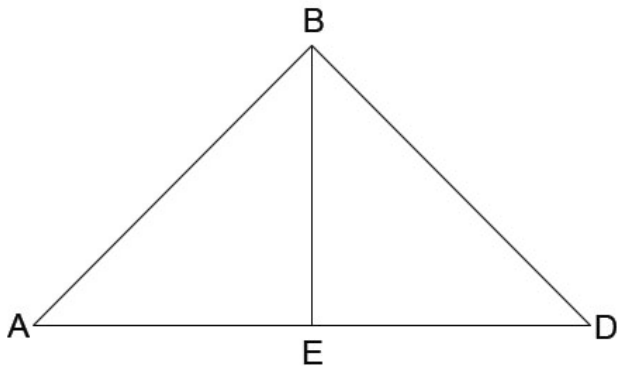
$$126 = 2x$$

$$63 = x$$

2. Define perpendicular lines.

Perpendicular lines intersect at a right angle.

3. In the figure below, segment  $\overline{BE}$  is the perpendicular bisector of  $\overline{AD}$ . What can you say about the other segments in the figure? What can you say about the angles?



Segment BD is congruent to segment AB. Segment AE is congruent to segment ED. Angle A is congruent to angle D.

4. Using the figure in #3, if  $\overline{BD} = 12$  and  $\overline{AD} = 18$ , find  $\overline{AB} + \overline{AE}$ .

Since  $BD = 12$ ,  $AB = 12$ .

Since  $AD = 18$  and BE is the segment bisector,  $AE = 9$ .

$$AB + AE = 12 + 9 = 21$$

5. Using the figure in #3, if angle A measures 35 degrees and angle D measure  $3x - 4$  degrees, find the value of  $x$ .

Since BE is the segment bisector, angles A and D are congruent.

$$35 = 3x - 4$$

$$35 + 4 = 3x - 4 + 4$$

$$39 = 3x$$

$$13 = x$$

6. Define the following. When appropriate, tell how their angle measures compare.

a. Transversal

A line that crosses parallel lines.

b. Alternate exterior angles

When a transversal crosses parallel lines, it crosses each line at one point. The angles which are outside the parallel lines and lie on opposite side of the transversal are alternate exterior angles.

c. Alternate interior angles

When a transversal crosses parallel lines, it crosses each line at one point. The angles which are inside the parallel lines and lie on opposite side of the transversal are alternate interior angles.

d. Corresponding angles

When a transversal crosses parallel lines, it crosses each line at one point. The angles which are in the same location with respect to the intersection point are corresponding angles.

7. Name one type of non-Euclidian geometry.

Spherical Geometry is one example.