

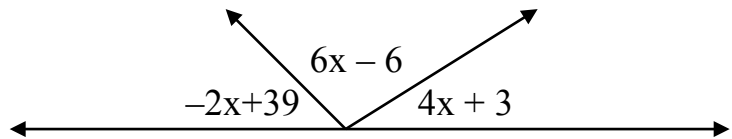
Teaching Notes for Geometry

Homework #1

Overview: In this lesson, students will review complementary, supplementary, and vertical angles. They will also review how to find the area and perimeter of rectangles, parallelograms, trapezoids, and triangles.

Classroom Examples:

- 1) Find x and the sizes of all three angles in the following drawing:



Answers: Supplementary angles add up to 180 degrees. Therefore,

$$(-2x+39)+(6x-6)+(4x+3)=180$$

$$1(-2x+39)+1(6x-6)+1(4x+3)=180$$

$$-2x+39+6x-6+4x+3=180$$

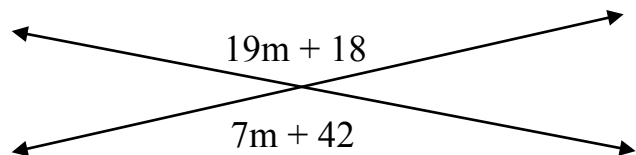
$$8x+36=180$$

$$8x=144$$

$x=18$ Now use substitution to find the three angles: $-2(18)+39 \rightarrow 3^\circ$,

$6(18)-6 \rightarrow 102^\circ$, and $4(18)+3 \rightarrow 75^\circ$

- 2) Find m and the sizes of both angles in the following drawing:



Answers: Vertical angles are equal. Therefore, $(19m+18)=(7m+42)$

$$1(19m+18)=1(7m+42)$$

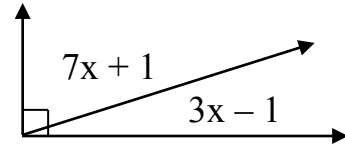
$$19m+18=7m+42$$

$$12m=24$$

$m=2$ Now use substitution to find both angles: $19(2)+18 \rightarrow 56^\circ$ and $7(2)+42 \rightarrow 56^\circ$

Teaching Notes for Geometry Homework #1

3) Find x and the sizes of both angles in the following drawing:



Answers: Complementary angles add up to 90 degrees. Therefore,

$$(7x + 1) + (3x - 1) = 90$$

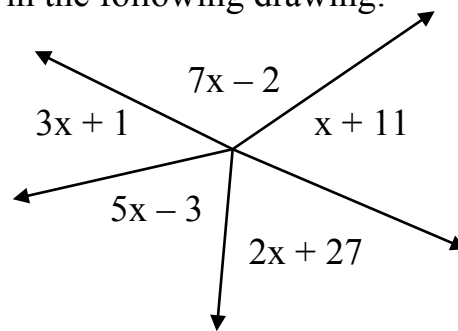
$$1(7x + 1) + 1(3x - 1) = 90$$

$$7x + 1 + 3x - 1 = 90$$

$$10x = 90$$

$x = 9$ Now use substitution to find the two angles: $7(9) + 1 \rightarrow 64^\circ$ and $3(9) - 1 \rightarrow 26^\circ$

4) Find x and the sizes of all five angles in the following drawing:



Answers: Angles that form a circle add up to 360 degrees. Therefore,

$$(7x - 2) + (x + 11) + (2x + 11) + (5x - 3) + (3x + 1) = 360$$

$$1(7x - 2) + 1(x + 11) + 1(2x + 11) + 1(5x - 3) + 1(3x + 1) = 360$$

$$7x - 2 + x + 11 + 2x + 11 + 5x - 3 + 3x + 1 = 360$$

$$18x + 18 = 360$$

$$18x = 342$$

$x = 19$ Now use substitution to find all five angles: $7(19) - 2 \rightarrow 131^\circ$,

$1(19) + 11 \rightarrow 30^\circ$, $2(19) + 11 \rightarrow 49^\circ$, $5(19) - 3 \rightarrow 92^\circ$, and $3(19) + 1 \rightarrow 58^\circ$

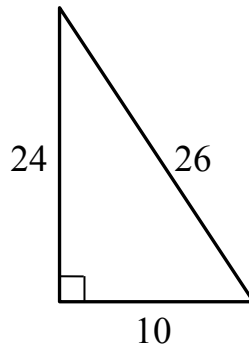
Teaching Notes for Geometry Homework #1

5) Find the perimeter and area of the following rectangle:



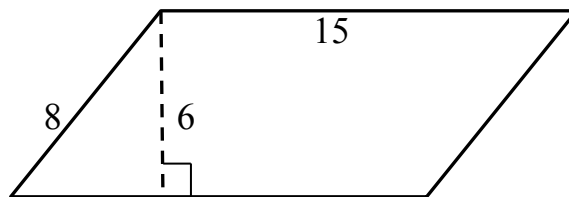
Answers: Perimeter is adding up all sides so $6+13+6+13=38$
The Area is the base times the height so $13(6)=78$

6) Find the perimeter and area of the following triangle:



Answers: Perimeter is adding up all sides so $26+24+10=60$
The Area is half the base times the height so $\frac{10(24)}{2}=120$

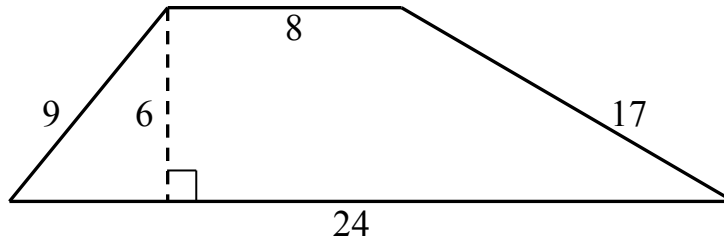
7) Find the perimeter and area of the following parallelogram:



Answers: Perimeter is adding up all sides so $8+15+8+15=46$
The Area is the base times the height so $15(6)=90$

Teaching Notes for Geometry Homework #1

8) Find the perimeter and area of the following trapezoid:



Answers: Perimeter is adding up all sides so $9 + 24 + 17 + 8 = 48$

The Area is half the sum of the bases times the height so $\frac{24+8}{2} \cdot 6 = 96$