

Name: _____

Things To Figure Out

1. For the following problems, use the illustration to the right.

A.) Name a pair of congruent alternate interior angles: _____

B.) Name a pair of congruent corresponding angles: _____

C.) Name a pair of same-side supplementary angles: _____

D.) If $m\angle 8 = 60$, then $m\angle 1 =$ _____, $m\angle 3 =$ _____, $m\angle 7 =$ _____, $m\angle 2 =$ _____

E.) If $m\angle 5 = 52$ and $m\angle 4 = 6x - 2$, $x =$ _____.

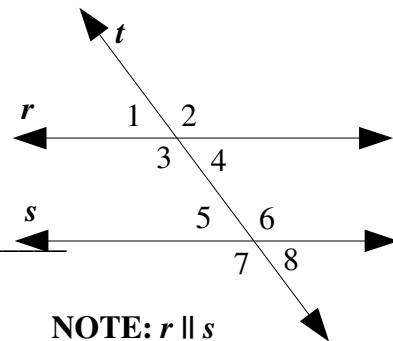
F.) If $m\angle 6 = 8y + 40$ and $m\angle 4 = 2y + 20$, $y =$ _____.

G.) If $m\angle 6 = 8y + 4x$, $m\angle 4 = 5y$, and $m\angle 2 = 120$, $x =$ _____ and $y =$ _____

H.) If $m\angle 5 = 4x + 8$, $m\angle 8 = 3y + 9$, and $m\angle 4 = 2x + 10$, $x =$ _____ and $y =$ _____

I.) If $m\angle 1 = 30$, $m\angle 4 = 2x + 10$, $m\angle 5 = 6y$, and $m\angle 7 = 15z$, $x =$ _____, $y =$ _____, and $z =$ _____

J.) If $m\angle 1 = 45$, $m\angle 2 = 8x + 2y + 45$, and $m\angle 8 = 4x + y$, then $x =$ _____, and $y =$ _____



Things To Figure Out

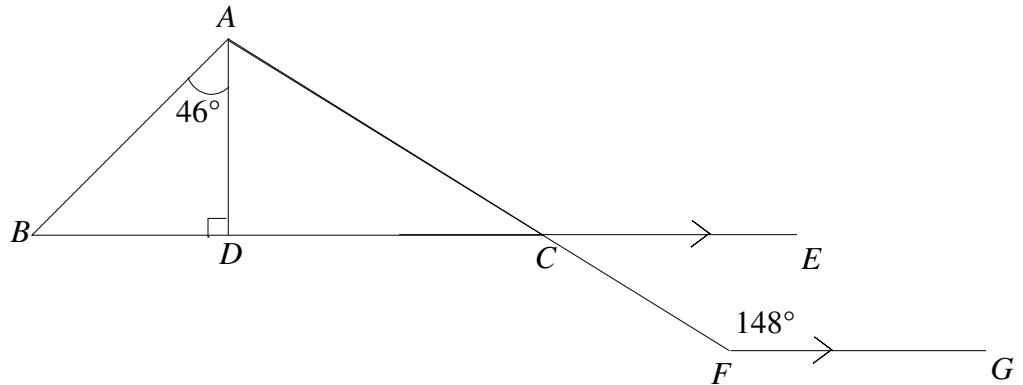
2.) For the following problems, use the illustration to the right.

a.) $m\angle ACE =$ _____

b.) $m\angle CAB =$ _____

c.) $m\angle ABC =$ _____

d.) $m\angle CAD =$ _____



3.) The measure of an interior angle of a regular polygon is 171. The polygon has _____ sides.

4.) The measure of an exterior angle of a regular polygon is 9. Each interior measure is _____.

5.) Find the compliments and supplements of the following:

A.) 72° C.) $16/3^\circ$ E.) $2x - 33^\circ$

B.) 21.7° D.) 35° F.) $z+x$

6.) Identify the following properties/postulates/theorems:

A.) If $\angle ABC$ is a right angle, then $\overrightarrow{AB} \perp \overrightarrow{BC}$.

B.) If $\overrightarrow{AB} \perp \overrightarrow{BC}$, then $\angle ABC$ is a right angle.

C.) If M is the midpoint of \overline{AB} , then $AM = (1/2)AB$

D.) If $AB \perp BC$, and \overrightarrow{BD} bisects $\angle ABC$, then $\angle ABD$ and $\angle DBC$ are complementary.

E.) If $\angle 1$ and $\angle 2$ are supplementary, then $m\angle 1 + m\angle 2 = 180$.

7.) By interchanging the **hypothesis** and the **conclusion** of an *if-then* statement, the _____ of the statement is formed.

8.) Vertical angles are never _____.

- a.) complementary b.) supplementary c.) right angles d.) adjacent

Things To Figure Out

9.) Provide an example relationship and illustration for the following postulates/theorems/definitions:

A.) If two parallel lines are cut by a transversal, then alternate interior angles are congruent.

Illustration:

Relationship:

B.) If two angles are supplements of congruent angles, then the two angles are congruent.

Illustration:

Relationship:

C.) If M is the midpoint of segment AB , then AM is equal to half of AB .

Illustration:

Relationship:

D.) If two lines are perpendicular, then they form congruent adjacent angles.

Illustration:

Relationship:

E.) If exterior sides of two adjacent acute angles are perpendicular, then the angles are complementary.

Illustration:

Relationship:

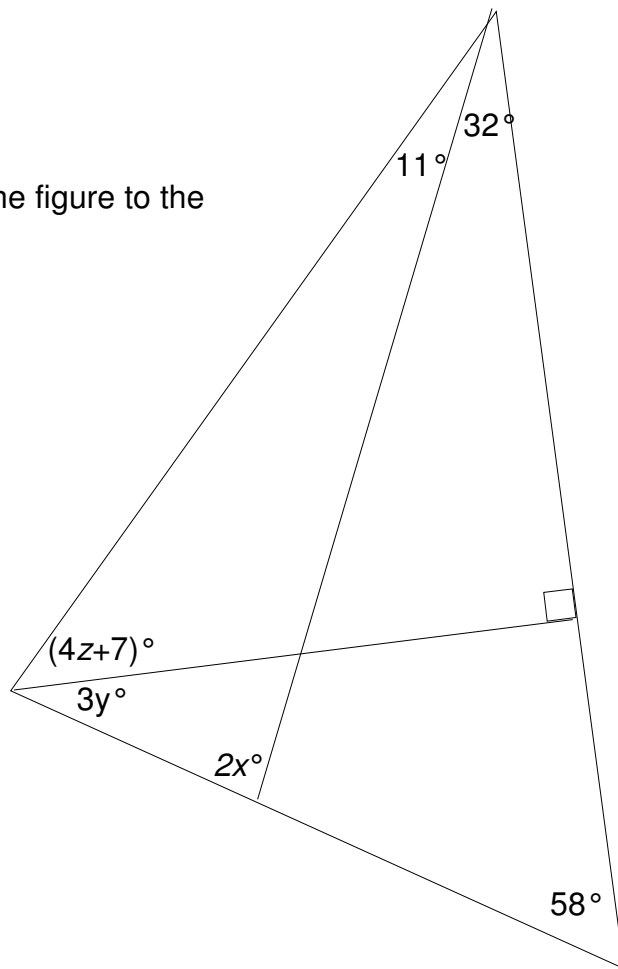
Things To Figure Out

10.) Find x , y and z for the figure to the right:

$x =$ _____

$y =$ _____

$z =$ _____



11.) \overrightarrow{AT} bisects $\angle CAD$. Draw an illustration depicting this and find the value of x .

ILLUSTRATION:

A.) $m\angle CAT = x + 10$; $m\angle TAD = 35$

B.) $m\angle TAD = 2(x + 1)$; $m\angle CAD = 30$

C.) $m\angle CAT = 6x - 9$; $m\angle TAD = 4x + 23$

D.) $m\angle CAT = 4x + 26$; $m\angle CAD = 3x - 12$

E.) $m\angle CAT + m\angle TAD = 90$; $m\angle CAD = 3x + 30$