**SM 2**

Objective: Geometry notes – review of angles

Review of angles:

| Name of angle	Definition	Picture	Relationship of the angles
Complementary Angles	**Angles whose measure adds up to 90°**		**adds up to 90°**
Supplementary Angles	**Angles whose measure adds up to 180°**		**adds up to 180°**
Linear Pair	Two angles that add up to a straight angle; non common sides form a straight line		**adds up to 180° connected; share a common side; make a line**
Adjacent Angles	Two angles that share a common side and vertex		Angles are next to each other, but do not need to be the same measure or add to a certain degree.
Vertical Angles	Angles that only share a vertex and make an "x" The angles are across from each other		Vertical angles have the same measure.

Use the diagram at the right to answer the following questions.
a) Name two pairs of vertical angles.

b) Name two sets of angles that form linear pairs.

c) Name two pairs of complementary angles.

d) Name two pairs of supplementary angles.

e) Name two pairs of congruent angles.

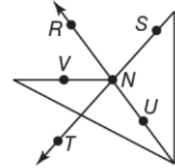f) Name a pair of adjacent angles that are neither complementary nor supplementary.
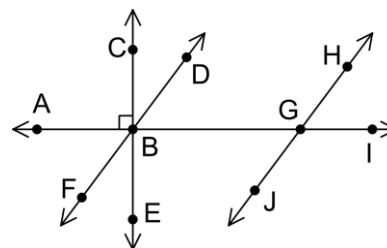
Examples: Find the missing angle measures.

g)

54°

3 1

2

h)

150°

3   1

2

i)

B

A

50°

C

57°
F

E

D
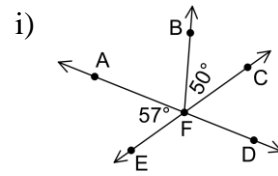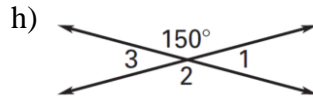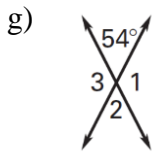
Use the diagram to the right to answer the following questions.

a) Name an angle congruent to ∠RNT. How do you know the angles are congruent?

R

S

V

N

U

T

b) Name an angle congruent to ∠RNS. How do you know the angles are congruent?

Angle Algebra Problem Tips:
- Ask yourself: "Are the angle measures equal to each other, or do they add up to something?"
  - If the angles are congruent, set one measure equal to the other.
  - If the angles are supplementary, add the measures together and set the sum equal to 180°.
 - If the angles are complementary, add the measures together and set the sum equal to 90°.

Examples: Find the value of the variable and the size of each angle.

a)

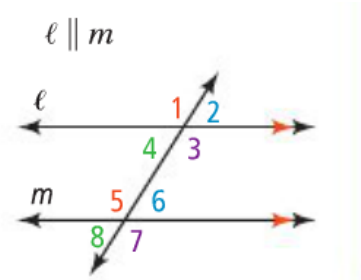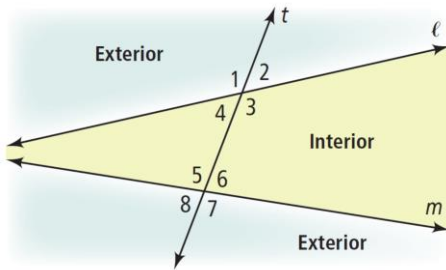$(10z - 11)°$ $99°$

b)

20°

$(3x - 5)°$

c)

U

$(4x + 12)°$ $2x°$

R   S   T
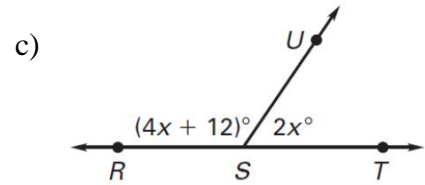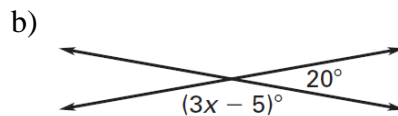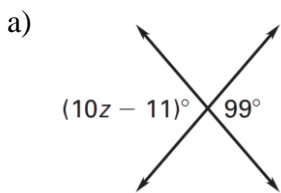
d) How big is the complement of a 57° angle?

e) Two angles are supplementary. The measure of one angle is 152°. What is the measure of the other?

Transversal: A line that intersects two or more coplanar lines at different points.
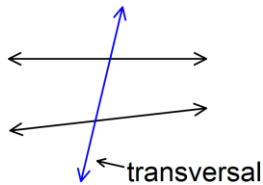
←transversal

The lines do not need to be parallel to be intersected by a transversal.


$\ell \parallel m$

Now we are going to focus on the relationship between the angles formed if the lines are parallel and intersected by a transversal.

Types of angles formed by a transversal intersecting two or more coplanar lines at different points

Name of angles	Definition	Picture	Relationship if the lines are parallel
Corresponding Angles	Same side of transversal One angle outside, one angle inside		$\cong$
Alternate Exterior Angles	Opposite sides of transversal Both angles outside of parallel lines		$\cong$
Alternate Interior Angles	Opposite sides of transversal Both angles inside of parallel lines		$\cong$
Same-Side Interior Angles	Same side of transversal Both angles inside of parallel lines		These angles are supplementary so they add to 180°

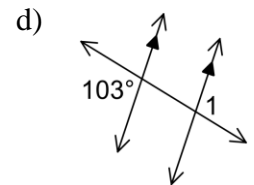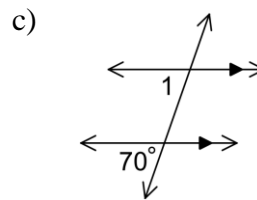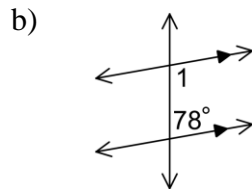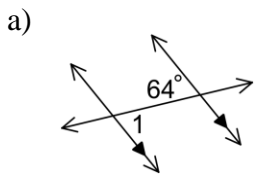**Examples:** Identify the following angle pairs. Name all possible pairs in the diagram.
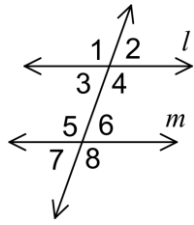
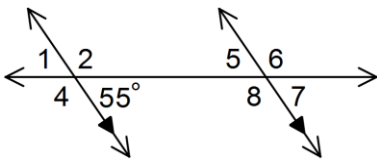Corresponding Angles _____ , _____ , _____ , _____

Alternate Exterior Angles _____ , _____

Alternate Interior Angles _____ , _____

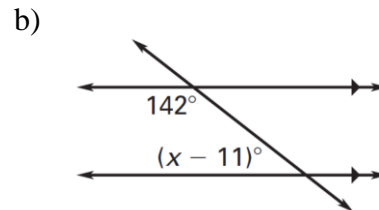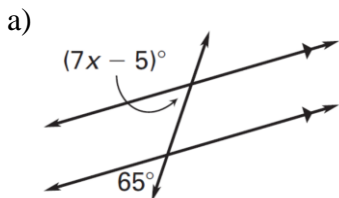Same-Side Interior Angles _____ , _____

Examples: Find $m\angle 1$ in each diagram. Give a reason for each answer.

a)

b)

c)

d)

Example: Find the measure of each numbered angle.

Examples: Find the value of x.

a)

b)

Examples: Find the value of x. Then find the degree of both angles.

a)

b)