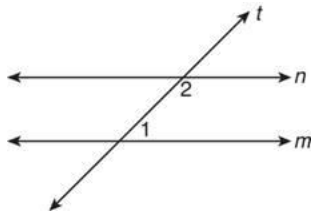


Geometry Test Unit 2: Angle Relationships in One and Two Intersections

1) Lines  $m$  and  $n$  are parallel and cut by a transversal  $t$ .



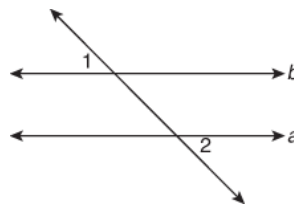
What can you conclude about angles 1 and 2?

Supplementary?  
 Congruent?  
 Complementary?  
 How do you know?

2) When two parallel lines are cut by a transversal, which of the following is *always* true?

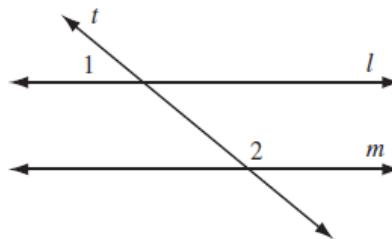
- I. Alternate interior angles are congruent.
- II. Corresponding angles are congruent.
- III. Same-side interior angles are congruent.
- IV. Same-side exterior angles are congruent.

3) Given:  $a \parallel b$   
 $m \angle 1 = 40^\circ$



What is the measure of  $\angle 2$ ?

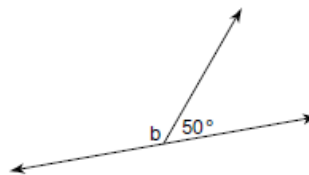
4) In the accompanying diagram, parallel lines  $l$  and  $m$  are cut by transversal  $t$ .



Which statement about angles 1 and 2 *must* be true?

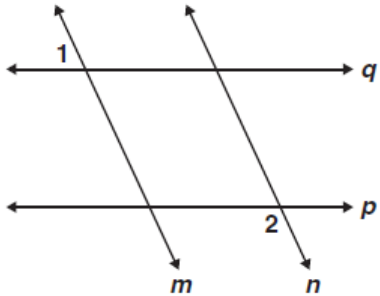
List everything you know about the angle measures and how you know it.

5) Solve for  $b$ :



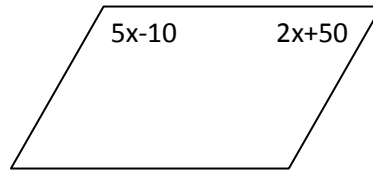
6)

Given:  $p \parallel q$ ;  
 $m \parallel n$ ;  
 $m\angle 1 = 84^\circ$



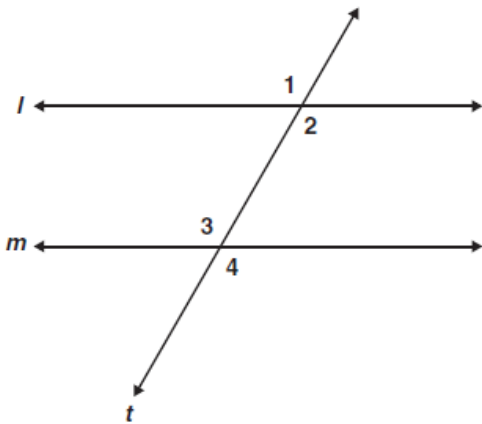
What is  $m\angle 2$ ?

8)



What is the angle relationship?  
 What rule applies?  
 How would you write the equation that will help you solve for x?

7)

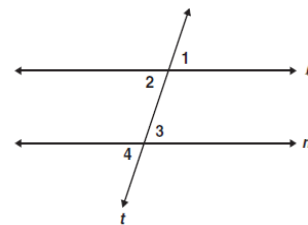


Which of the following conclusions does *not* have to be true?

List everything you can conclude about all the angle relationships. If you know all of the relationships, one of these things you list will be an answer choice.

9)

Given:  $\angle 2 \cong \angle 3$   
 Prove:  $\angle 1 \cong \angle 4$

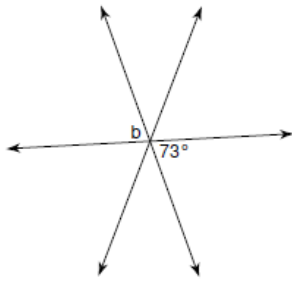


<u>Statement</u>	<u>Reason</u>
1. $\angle 2 \cong \angle 3$	1. Given
2. $\angle 1 \cong \angle 2$ ; $\angle 3 \cong \angle 4$	2. ?
3. $\angle 1 \cong \angle 4$	3. Transitive Property

What reason can be used to justify statement 2?

Why are angles 1 and 2 congruent?

10) Solve for b:



12)

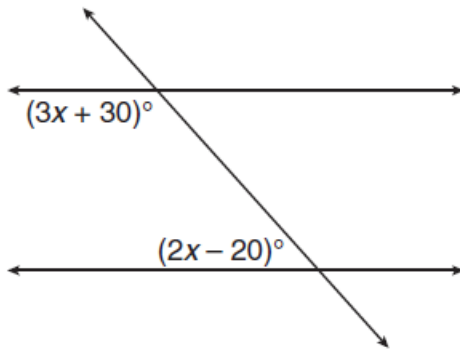
**Which of the following could be used to prove that two lines intersected by a transversal are parallel?**

List all the things you know about the angle relationships that happen when parallel lines are cut by a transversal.

Most of the answer choices will be wrong (for example, “consecutive interior angles are congruent.”) One will be a relationship and rule we’ve studied.

11)

**Two parallel lines are cut by a transversal as shown below.**



**Of the two angles shown, what is the measure of the larger angle?**

What is the angle relationship?

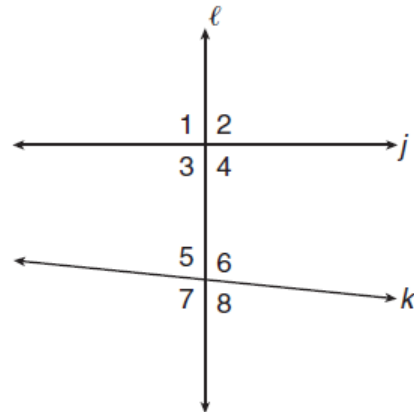
Which rule applies to that relationship?

What is the equation? Solve it.

Is  $x$  the answer or is the angle measure the answer?

13)

**Look at the figure below. If  $m\angle 1 \neq m\angle 5$ , then lines  $j$  and  $k$  are not parallel to one another.**



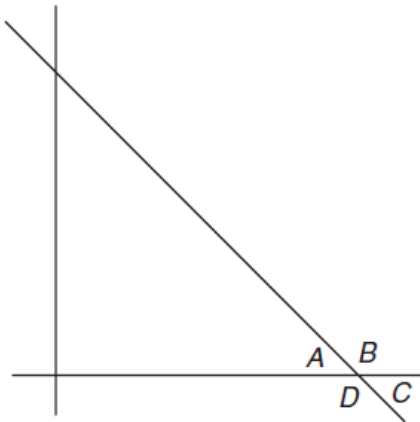
**What can you assume about the properties of this figure?**

What are all the rules that would apply IF the lines were parallel?

Eliminate the ones that require the lines to be parallel. The correct answer is a relationship that will still be true because it doesn't rely on parallel lines. This relationship and rule are ALWAYS true.

14)

Look at the figure below. You are given that  $\angle A$  is an acute angle.

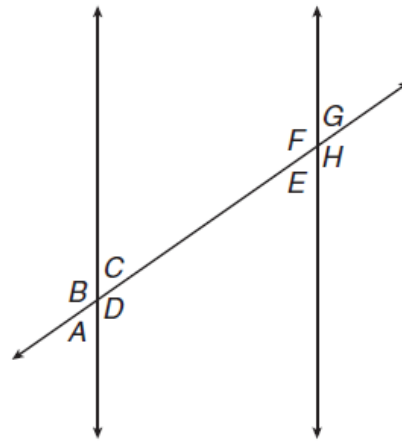


Assume that  $m\angle A = m\angle B$  leads to a contradiction with the given information. Which of the following statements leads to the contradiction?

Think of all the things you know about angles A and B together. Why can't angle A be acute and equal to B?

16)

Two parallel lines are cut by a transversal as shown below.

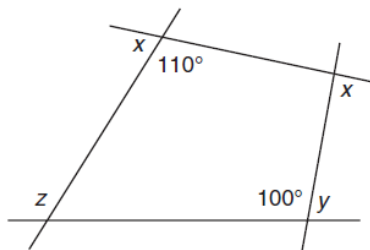


If  $m\angle A = 40$ , then what is the  $m\angle F$  ?

Fill in all the angles you know by starting with  $\angle A$  and applying all the rules.

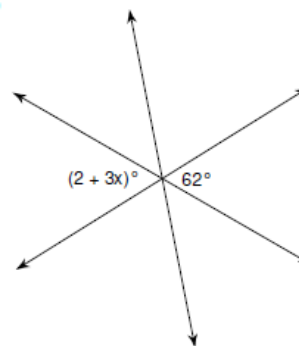
15)

What is the measure of angle  $z$ ? (Note: not drawn to scale)



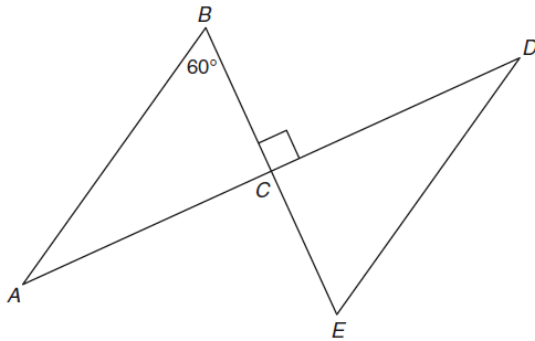
Solve for all the variables. Remember that  $x$  and  $x$  have to be the same number. Also, the total of the angles inside a 4-sided shape is 360.

17)



18)

Which statement best describes  $\angle A$  and  $\angle B$  shown below?



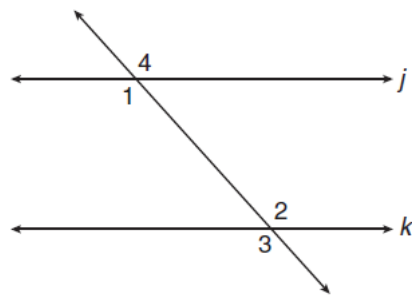
Fill in all the angles you can know because of the 60 and the right angle.

Remember that the total of the angles inside a triangle is 180.

Then compare angles A and B so you can know the rule that applies to them.

20)

Lines  $j$  and  $k$  are cut by a transversal as shown below.

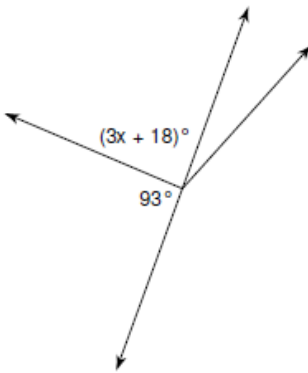


Given that lines  $j$  and  $k$  are parallel, what reason can be used to prove  $\angle 1 \cong \angle 2$ ?

What are the rules that happen when parallel lines are cut by a transversal?

Which rules don't require parallel lines?

19) Solve for  $x$ :



21) Solve for  $x$ :

