



- \*20 questions
- \*Calculators allowed
- \*Show all work/steps- use separate paper
- \*Recommend time frame 30min -45min

*Provide complete explanations in your responses.*

### Conditional Statements and Converses

1. Define is a conditional statement?
2. Identify the hypothesis and conclusion of the conditional statement “*if the television is playing then the house has electricity.*”
3. Write the converse of the statement in question 2.
4. Is the statement an “if and only if” statement? Explain.  
“*If the sun is out then it’s daytime*”
5. Prove the statement is false by providing a counterexample  
“*If the car is moving then its engine must be running*”

### Algebra Properties

6. What property of algebra describes the statement  $d = d$ ?
7. What property of algebra describes the statement *if  $c = d$  and  $d = g$  then  $c = g$* ?
8. Define the symmetric property of algebra?
9. \_\_\_\_\_ Property is demonstrated by  $3(x + 2) = 3x + 6$ .

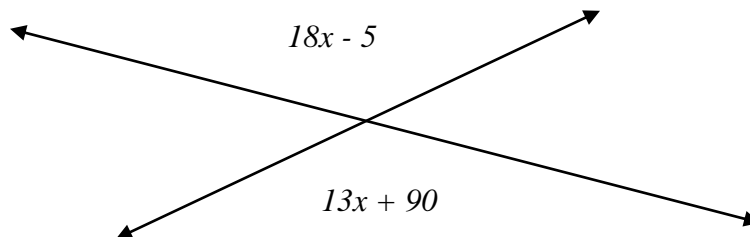
Deductive and Inductive Reasoning

Determine if the logic is deductive or inductive reasoning.

10. Every house has a door. I purchased a house, so my house must have a door.
11. I get sick every winter. I will certainly get sick next year.
12. The bus stops everyday at 5:15pm, so it will be stopping today at 5:15pm.
13. Every car has a steering wheel. My sister has a car. Therefore her car has a steering wheel.

Angles and Lines

14. Write the notation that shows line j and k are perpendicular to one another.
15. Find the complement of  $60^\circ$
16. What is the supplement of  $38^\circ$
17. Solve for x.



18. Angles 1 and 3 are supplementary. Find the measures of the angles given the following:  
 $m\angle 1 = 4x$  and  $m\angle 3 = 6x + 10$
19. Angles 5 and 6 are complementary. Find the measures of the angles given the following:  
 $m\angle 5 = 2x - 2$  and  $m\angle 6 = 3x + 17$

Planning and Writing a Proof

20. List all five reasons one could use to justify a statement in a geometric proof.