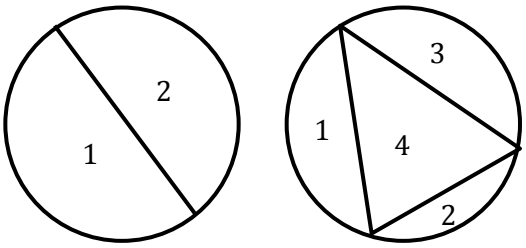
Math 2201 **Inductive and Deductive Reasoning**
Unit 1 Review ANSWERS

Directions: Complete each question in the space provided.

1. Complete the following number trick and then prove it deductively:
   (Hint: let your number be x in your proof).
   - Choose a number. x
   - Double the number. 2x
   - Add 20 to your new number. 2x+20
   - Now, divide the total by 2. x + 10
   - Finally, subtract your original number that you started with. 10
   - Your answer will be 10!

2. Given the Fibonacci sequence 1, 1, 2, 3, 5, 8, ... make a conjecture about the 8th term.
   21

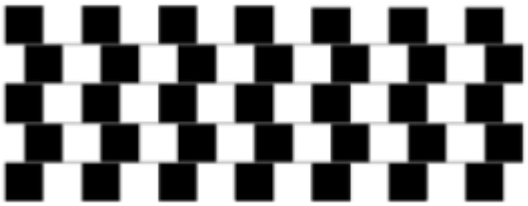
3. Points are placed on the circumference of a circle and joined so as not to cross each other.



a). How number regions are formed when 6 points are used? 10

b). Make a conjecture relating the number of points to the number of regions. R = 2n-2

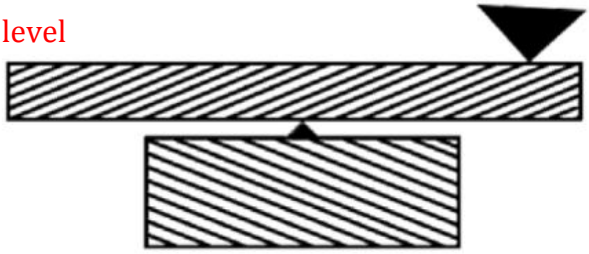
4. Make a conjecture about the following lines.



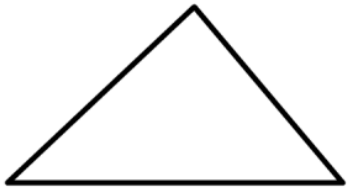
Gather evidence to support or deny your conjecture.

The lines are parallel

5. Susie conjectures that this balance is not level.
   Do you agree or disagree? Justify. Measure!It is level



6. George conjectures that the following triangle is a right triangle. Do you agree or disagree? Explain. Measure! 90 degress



7. Provide a counterexample for each of the following conjectures:

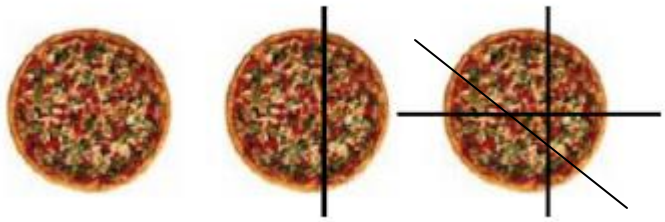
a). All animals living in the ocean are fish. seals

b). All basketball players are more than 6 ft tall. me

c). If it is a cell phone, then it has a touch screen. blackberry

d). For all numbers, the expression x^2 is greater than x. $0.1^2=0.01$

8. Melissa made a conjecture about slicing pizza. She noticed a pattern between the number of slices of pizza and the number of cuts made in the pizza.



Number of cuts	0	1	2
Number of slices of pizza			

Her conjecture was that the number of pizza slices doubled with each cut. Do you agree or disagree? Justify

9. All natural numbers are whole numbers. All whole numbers are integers. 3 is a natural number. What can be deduced about the number 3? It's whole and integer

10. Complete the conjecture started below that holds for all equations.

3 + 5 = 8
5 + 7 = 12
17 + 19 = 36

Conjecture: The sum of two consecutive odd numbers is always _____even_____.