☑ Use when you get it right all by yourself

S Use when you did it all by yourself, but made a silly mistake

H Use when you could do it alone with a little help from teacher or peer

G Use when you completed the problem in a group

X Use when a question was attempted but wrong (get help)

N Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Given	17 - 20		
If ≅, then =. Or If =, then ≅.		18 - 20	18 - 20
Reflexive POE/POC	17 - 20	17 - 20	17 - 20
Transitive POE/POC	17 - 20	17 - 20	17 - 20
Symmetric POE/POC	17 - 20	17 - 20	17 - 20
Segment/Angle Addition Postulate	17 - 20	17 - 20	17 - 20
Def. of Complementary/Supplementary Angles	17 - 20	17 - 20	17 - 20
Def. of vertical angles	17 - 20	17 - 20	17 - 20
Def. of Perpendicular Segments/Lines	17 - 20	17 - 20	17 - 20
Substitution POE	17 - 20	17 - 20	17 - 20
Multiplication/Division POE/POC	17 - 20	17 - 20	17 - 20
Addition/Subtraction POE/POC	17 - 20	17 - 20	17 - 20
Distribution Property	17 - 20	17 - 20	17 - 20
Def. of linear pair	17 - 20	17 - 20	17 - 20
Def. of Midpoint	17 - 20	17 - 20	17 - 20
Commutative POA/POM	17 - 20	17 - 20	17 - 20
Conditional, Converse, Inverse, & Contrapositive	1, 2	15, 16	
Truth Value	1, 2	15, 16	
Bi-Conditional	1, 2	15, 16	
Venn Diagrams (S, A, N)	3 – 9	12, 13	
If-Then Format	1 – 7	15, 16	
Counterexamples	1 – 7, 15, 16		
Inductive/Deductive Reasoning	10, 11	8, 9	
Law of Syllogism/Detachment	14	8, 9	
Two-Column Proofs	17 - 20	17 - 20	17 - 20

State the Converse, Inverse, and Contrapositive of each of the following. Then determine the truth-value of each statement. Then, determine if a bi-conditional statement can be written. If it can, write it. If not, write *not possible,* and explain why not.

1. If I break curfew, then my car will be taken away.
2. If $x = 7$, then $x^2 = 49$.

For each of the following statements draw a Venn diagram and re-write the statement as a conditional statement in "if…then" form.

3. Any set of three points is coplanar.
4. Everyone who has a valid driver's license passed a written test.

5. Squares have four right angles.
6. The game is canceled in the event of rain.
7. In a parallelogram, opposite sides are congruent.

Use deductive reasoning and a Venn diagram to provide the conclusions for the following. If no logical conclusion is possible, then write *no conclusion,* and explain why not.
8. If Linda takes the bus, then she will be late for her job interview. Linda does not take the bus.
9. If the consecutive sides of a parallelogram are congruent, then the parallelogram is a rhombus. The consecutive sides of parallelogram QRST are congruent.

Define
    10. Inductive reasoning   11. Deductive reasoning

Create a Venn Diagram for the following.
    12. *Some* Lancaster students are in band   13. Integers *are* real numbers

14. State the logic rule using p and q for:
    a) Law of Syllogism   b) Law of Detachment

15. Write the Conditional, Converse, Inverse and Contrapositive for the following statement. Then state Truth Value (always write the entire word out). If bi-conditional exists then write it. If not, then explain why not.
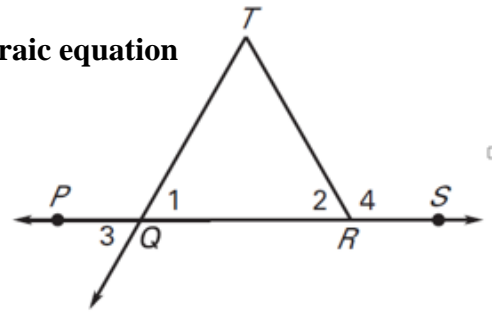   All ducks have web feet

16. Write the conditional & the converse. Then if possible, write the biconditional.
    A polygon with five sides is a pentagon

17. Use a two column proof to solve and justify each step of the algebraic equation
$$\frac{2}{3}(9x - 15) - 7 = 13x + 5$$

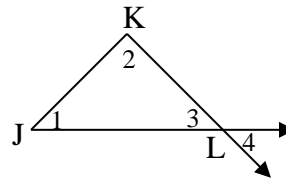**18. Prove the following using a two column proof:**
    Given: $\angle 1 \cong \angle 2$
    Prove: $\angle 3$ & $\angle 4$ are supplementary angles
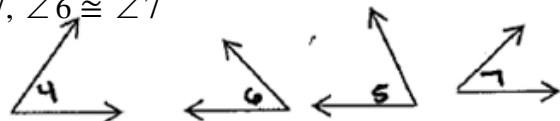
19. Here is a related one to help you out on the above:
    Given: $m\angle 1 + m\angle 3 = 90^\circ$
    Prove: $\angle 1$ & $\angle 4$ are complementary angles

Statements	Reasons
1. m $\angle 1$ + m $\angle 3$ = 90°	1. _____
2. $\angle 3 \cong \angle 4$	2. _____
3. $m\angle 3 = m\angle 4$	3. _____
4. m $\angle 1$ + m $\angle 4$ = 90°	4. _____
5. $\angle 1$ & $\angle 4$ are complementary	5. _____

20.   Given: $\angle 4$ complements $\angle 6$, $\angle 5$ complements $\angle 7$, $\angle 6 \cong \angle 7$
    Prove: $\angle 4 \cong \angle 5$

CYU Reflection: *How far can you go: basic, intermediate, or advanced?*
Rate your mastery level!
How confident are you with the skills this CYU covered? Circle the score you would give yourself.

1	2	3	4	5	6	7	8
Basic		Intermediate			Advanced	Solved ALL!	