Honors Geometry Ch. 2 Test Review #2 NAME: Key

☑ 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 $x^2 = 49$.

extra paper

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.

All on paper!

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

extra paper

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

extra paper

10. Inductive reasoning
11. Deductive reasoning

Create a Venn Diagram for the following.

extra paper

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

extra paper

17. Use a two column proof to solve and justify each step of the algebraic equation

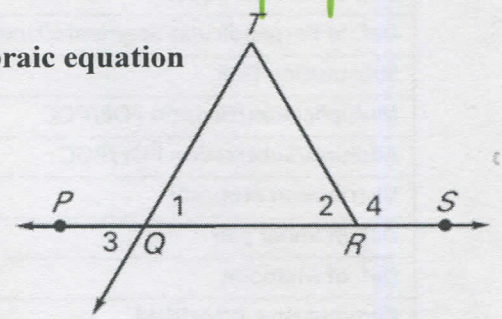
$$\frac{2}{3}(9x - 15) - 7 = 13x + 5$$

18. Prove the following using a two column proof:

Given: $\angle 1 \cong \angle 2$

Prove: $\angle 3$ & $\angle 4$ are supplementary angles

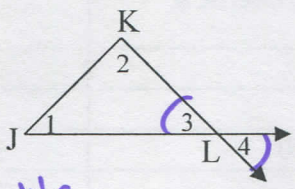
extra paper



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

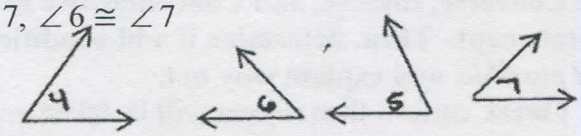


Statements	Reasons
1. $m\angle 1 + m\angle 3 = 90^\circ$	1. given
2. $\angle 3 \cong \angle 4$	2. Def of vertical ∠'s
3. $m\angle 3 = m\angle 4$	3. If ≅ ⇒ =
4. $m\angle 1 + m\angle 4 = 90^\circ$	4. Substitution POE
5. $\angle 1$ & $\angle 4$ are complementary	5. Def of complementary ∠'s

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

Prove: $\angle 4 \cong \angle 5$

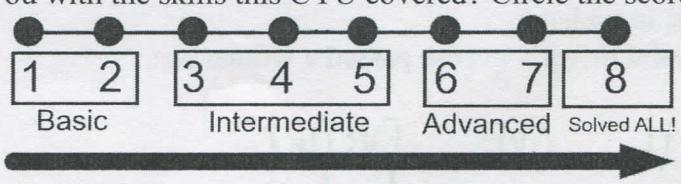
extra paper



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.

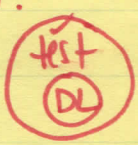


1. If I break curfew, then my car will be taken away. T
   If my car is taken away, then I broke curfew. F (grader)
   If I don't break curfew, then my car is not taken away. F
   If my car is not taken away, then I did not break curfew. T
   ∴ No bi-conditional. Not all true statements.

2. If $x=7$, $\Rightarrow x^2=49$. True
   If $x^2=49 \Rightarrow x=7$. False, $x=-7$.
   If $x\neq 7 \Rightarrow x^2\neq 49$. False, $x\neq -7$.
   If $x^2\neq 49 \Rightarrow x\neq 7$. True.
   ∴ No biconditional. Not all true statements.

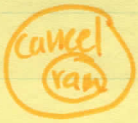
3. If there are a set of 3 points ⇒ they are coplanar.

4. If you have a valid driver's license, ⇒ you passed the written test.



5. If its a square ⇒ it has 4 Rt ∠'s.

6. If it rains, ⇒ the game is canceled.

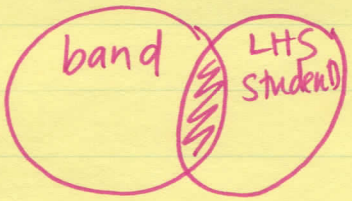


7. If its a parallelogram, ⇒ opposite sides R ≅.

8. No conclusion. She could have gotten a ride, or bought a car.

9. ∴ Parallelogram QRST is a rhombus.

10. Conjecture based on observations of pattern.
11. Conclusion based on fact: science, math, formulas, definitions, etc.

12. 

13. 

14. a) $P \to q$, $q \to r$, $r \to S$
$\therefore P \to S$

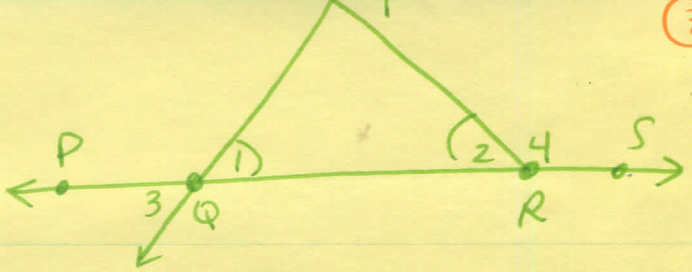
b) $P \to q$ } general statement
P is true }
$\therefore q$ is true } specific case.

15. If you are a duck, ⇒ you have webbed feet. True
If you have webbed feet ⇒ you are a duck. False (labs)
If you are not a duck ⇒ you don't have webbed feet. False
If you don't have webbed feet ⇒ you are not a duck. True
∴ No biconditional. Not all statements are true.

16. If a polgon has five sides, then it is a pentagon. True
If a polygon is a pentagon, then it has five sides. True
∴ Polygons are pentagons iff they have five sides.

17.

Statements	Reasons
1. $\frac{2}{3}(9x-15)-7=13x+5$	1. given
2. $6x-10-7=13x+5$	2. Distributive Property
3. $6x-17=13x+5$	3. CLT or Simplify
4. $-22=-7x$	4. Subtraction POE
5. $\frac{22}{7}=x$	5. Division POE



18.

Statements	Reasons
1. $\angle 1 \cong \angle 2$	1. given
2. $\angle 3 \cong \angle 1$	2. Def of vertical $\sphericalangle$'s
3. $m\angle 4 = m\angle 2$; $m\angle 3 = m\angle 1$	3. If $\cong \Rightarrow =$
4. $m\angle 3 = m\angle 2$	4. Transitive POE
5. $m\angle 2 + m\angle 4 = 180°$	5. Def. of linear pair
6. $m\angle 3 + m\angle 4 = 180°$	6. Substitution POE
7. $\angle 3$ & $\angle 4$ R supplementary $\sphericalangle$'s	7. Def of Supplementary $\sphericalangle$'s

20.

Statements	Reasons
1. $\angle 4$ complement $\angle 6$ $\angle 5$ complement $\angle 7$ $\angle 6 \cong \angle 7$	1. given
2. $m\angle 4 + m\angle 6 = 90°$ $m\angle 5 + m\angle 7 = 90°$	2. Def of complement
3. $m\angle 4 + m\angle 6 = m\angle 5 + m\angle 7$	3. Substitution POE
4. $m\angle 6 = m\angle 7$	4. If $\cong \Rightarrow =$
5. $m\angle 4 + m\angle 7 = m\angle 5 + m\angle 7$	5. Substitution POE
6. $m\angle 4 = m\angle 5$	6. Subtraction POE
7. $\angle 4 \cong \angle 5$	7. If $= \Rightarrow \cong$