

**QUIZ Review 2.1-2.4 CYU**

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

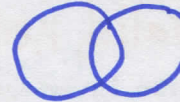
CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Venn Diagram (S, A, N)	1 - 6	1 - 6	1 - 6
If-Then Format	7 - 9	7 - 9	7 - 9
Law of Detachment	10 - 19	10 - 19	10 - 19
Converse, Inverse, Contrapositive	20 - 25	20 - 25	20 - 25
Bi-Conditional, iff	20 - 25	20 - 25	20 - 25
Truth Value	20 - 25	20 - 25	20 - 25
Addition POE/Subtraction POE	26 - 33	26 - 33	26 - 33
Multiplication POE/Division POE	26 - 33	26 - 33	26 - 33
Substitution POE	26 - 33	26 - 33	26 - 33
Reflexive Property	26 - 33	26 - 33	26 - 33
Transitive Property	26 - 33	26 - 33	26 - 33
Symmetric Property	26 - 33	26 - 33	26 - 33
Distributive Property	26 - 33	26 - 33	26 - 33

**I. Draw and label a Venn diagram for each of the following.**

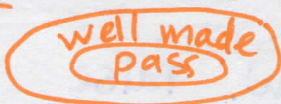
1. All basketball players are tall.



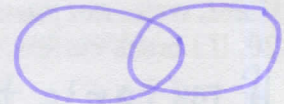
2. Some dogs can swim.



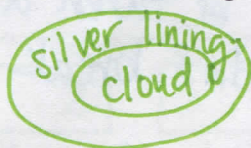
3. Only well-made toys pass inspection.



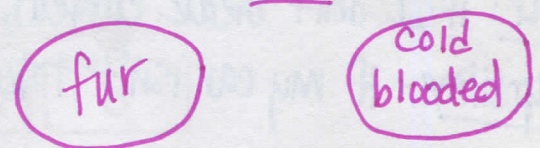
4. Some people are incapable of making a commitment.



5. Every cloud has a silver lining.



6. Animals with fur are never cold blooded.



II. Rewrite each of the following statements in "if...then" form.

7. All wizards wear long, pointed hats. *If you are a wizard, then you wear long pointed hats.*
8. No children like to go to bed early. *If you are a child, then you don't like to go to bed early.*
9. In the Northern Hemisphere, January is a winter month. *If you are in the Northern Hemisphere, then Jan. is a winter month.*

III. State a valid conclusion based on the given statements, if possible. Show your reasoning.

10. The Barnhills always have hot dogs on Tuesday. Today is Tuesday.  
*Not valid, need hypothesis not conclusion*
11. Only bright students get A's. Cole gets all A's.  
*Not valid, need hypothesis not conclusion*
12. Students who work hard get good grades. Liz gets good grades.  
*Not valid, need hypothesis not conclusion*
13. If the books fall out, Miss Kosh will laugh. Miss Kosh does not laugh.  
*Not valid, exact hypothesis, (NOT)*
14. If the bookcase is made of wood, it is expensive. The bookcase is expensive.  
*Not valid, need hypothesis not conclusion*
15. Everyone with a green card is a resident alien. Ms. Khan has a green card.  
*Ms. Khan is a resident alien.*
16. If I win the lottery, I will buy a new car. I don't win the lottery.  
*Not valid, can't change to NOT*
17. Nobody works at the mill during a strike. Nobody is working at the mill today.  
*There is a strike.*
18. Jordan will smile if he finds a new hat. Jordan doesn't find a new hat.  
*Not valid, doesn't*
19. People who are happy smile a lot. Tina smiles a lot.  
*Not valid, need hypothesis not conclusion*

IV. State the Converse, Inverse, and Contrapositive of each of the following. 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*.

20. If I break curfew, then my car will be taken away. *True*

Converse: If my car is taken away,  $\Rightarrow$  I broke curfew. *False*

Inverse: If I don't break curfew, then my car won't be taken away. *False*

Contrapositive: If my car isn't taken away,  $\Rightarrow$  I didn't break curfew. *True*

$\therefore$  Bad grades, lying, fighting.  $\rightarrow$  not possible!

21. If  $x = 7$ , then  $x^2 = 49$ .

Converse: If  $x^2 = 49 \Rightarrow x = 7$ . False

Inverse: If  $x \neq 7 \Rightarrow x^2 \neq 49$ . False

not possible  $\rightarrow \pm 7$

Contrapositive: If  $x^2 \neq 49 \Rightarrow x \neq 7$ . True

22. If I read Dr. Seuss, then I will laugh.

Converse: If I laugh, then I read Dr. Seuss. False

Inverse: If I don't read Dr. Seuss,  $\Rightarrow$  I won't laugh. False

not possible  $\rightarrow$  joke

Contrapositive: If I don't laugh  $\Rightarrow$  I didn't read Dr. Seuss. False

23. If I'm a Star-Bellied Sneetches, then I can play on the beaches.

Converse: If I can play on the beaches,  $\Rightarrow$  I'm a Star-Bellied Sneetch.

Inverse: If I'm not a Star-Bellied Sneetch,  $\Rightarrow$  I can't play on the beaches.

Contrapositive: If I can't play on the beaches  $\Rightarrow$  I'm not a Star-Bellied Sneetch.

not possible: people

24. If  $x = 11$ , then  $4x - 7 = 37$ .

Converse:  $4x - 7 = 37 \Rightarrow x = 11$

Inverse: If  $x \neq 11 \Rightarrow 4x - 7 \neq 37$ .

not possible  $\rightarrow 2x = 22$

Contrapositive: If  $4x - 7 \neq 37 \Rightarrow x \neq 11$ .

25. If a polygon has eight sides, then it is an octagon.

Converse: If a polygon is an octagon  $\Rightarrow$  it has eight sides.

Inverse: If a polygon does not have eight sides  $\Rightarrow$  it is not an octagon.

Contrapositive: If a polygon is not an octagon  $\Rightarrow$  it doesn't have eight sides.

$\therefore$  Polygons are octagons iff they have 8 sides.

V. Use the property to copy and complete the statement.

26. Substitution POE: If  $AB = 20$ , then  $AB + CD = 20 + CD$ .

27. Symmetric POE: If  $m\angle 1 = m\angle 2$ , then  $m\angle 2 = m\angle 1$ .

28. Addition POE: If  $AB = CD$ , then  $AB + EF = CD + EF$ .

29. Multiplication POE: If  $AB = CD$ , then  $5 \cdot AB = 5 \cdot CD$ .

30. Subtraction POE: If  $LM = XY$ , then  $LM - GH = XY - GH$ .

31. Distributive Property: If  $5(x + 8) = 2$ , then  $5(x) + 5(8) = 2$ .

32. Transitive POE: If  $m\angle 1 = m\angle 2$ , and  $m\angle 2 = m\angle 3$ , then  $m\angle 1 = m\angle 3$ .

33. Reflexive POE:  $m\angle ABC = m\angle ABC$ .

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.

