FACEing MATH™ Name: _____

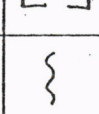
Lesson 4: Basic Logic

Directions: ***Solve each problem and use a pencil to DRAW the object that corresponds with your answer. SHOW YOUR STEPS!!!***

1. *If you play in the street, then you will be hit by a car.* The underlined portion of the statement is the _____.

(a) If your answer is conclusion draw the following hat on the head.	
(b) If your answer is hypothesis draw the following hat on the head.	

2. *If you live in California, then you live in the United States.* The underlined portion of the statement is the _____.

(a) If your answer is conclusion draw the following ears.	
(b) If your answer is hypothesis draw the following ears.	

3. *If a figure is a rectangle, then it is a parallelogram.* The underlined portion of the statement is the _____.

(a) If your answer is hypothesis draw a set of earrings	
(b) If your answer is conclusion draw a Nose Ring	

4. *If* $2x+10=20$, *then* $x=5$. The underlined portion of the statement is the _____.

(a) If your answer is conclusion draw the following fluffy hair on each side of the head.	
(b) If your answer is hypothesis draw the following spiked hair on each side of the head.	

5. *If two segments have equal measures, then they are congruent.* The underlined portion of the statement is the _____.

(a) If your answer is hypothesis draw the following eyes.	
(b) If your answer is conclusion draw the following eyes.	

6. Identify the counterexample of the following: *If you live in the United States, then you live in California.*

(a) If your answer is Dana lives in Colorado draw the following eyebrows.	
(b) If your answer is Bob lives in San Diego draw the following eyebrows.	

7. Identify the counterexample of the following: *If* $x^2=4$, *then* $x=2$.

(a) If your answer is $x=2$ draw the following nose.	
(b) If your answer is $x=-2$ draw the following nose.	

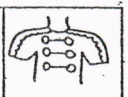
8. Identify the counterexample of the following: *If a figure has four sides, then it is a square.*

(a) If your answer is a rectangle draw the following mouth and trumpet.	
(b) If your answer is a triangle draw the following mouth and flute.	

9. Identify the counterexample of the following: *Numbers less than one are fractions.*

(a) If your answer is $\frac{1}{2}$, draw a large square on each cheek..	
(b) If your answer is -2, draw a large circle on each cheek.	

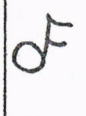
10. Identify the counterexample of the following: *If a fruit is red, then it is an apple.*

(a) If your answer is licorice draw the following band uniform.	
(b) If your answer is a strawberry draw the following band uniform.	

11. Identify the counterexample of the following: *If a vehicle has four wheels, then it is a car.*

(a) If your answer is a riding lawnmower draw THREE of the following music notes in the background.	
(b) If your answer is a Ferrari draw a treble cleft in the background.	

12. Identify the converse of the following: *If you live in Nevada, then you live in the United States.*

(a) If your answer is If you live in the United States, then you live in Nevada draw THREE of the following music notes in the background.	
(b) If your answer is If you don't live in Nevada, then you don't live in the U. S. draw TWO of the following music notes in the background.	

Directions: *Solve each problem and COLOR the object that corresponds with your answer.*
SHOW YOUR STEPS!!!

13. Identify the converse of the following: *Squares are parallelograms.*

(a) If your answer is If a figure is a square, then it is a parallelogram color the striped line on the hat red.

(b) If your answer is Parallelograms are squares color the striped line on the hat yellow.

14. Identify the converse of the following: *If* $m\angle 1 + m\angle 2 = 90$, *then* $\angle 1$ *and* $\angle 2$ *are complementary.*

(a) If your answer is *if* $\angle 1$ *and* $\angle 2$ *are complementary, then* $m\angle 1 + m\angle 2 = 90$, color the hat green

(b) If your answer is *If* $m\angle 1 + m\angle 2 = 90$, *then* $\angle 1$ *and* $\angle 2$ *are not complementary,* color the hat Blue

15. Identify the converse of the following: *If* $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$, *then* $\overleftrightarrow{AB}$ *and* $\overleftrightarrow{CD}$ *do not intersect.*

(a) If your answer is *If* $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$, *then* $\overleftrightarrow{AB}$ *and* $\overleftrightarrow{CD}$ *intersect,* color the earrings blue

(b) If your answer is *If* $\overleftrightarrow{AB}$ *and* $\overleftrightarrow{CD}$ *do not intersect, then* $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$, color the earrings green

16. Identify the converse of the following: *If* $\angle 1$ *and* $\angle 2$ *form a linear pair, then they are supplementary.*

(a) If your answer is *If* $\angle 1$ *and* $\angle 2$ *are supplementary, then they form a linear pair,* color the back ground pink

(b) If your answer is *If* $\angle 1$ *and* $\angle 2$ *form a linear pair, then they are not supplementary,* color back ground orange

17. Identify the negation of the following: $\angle 1$ *is acute.*

(a) If your answer is $\angle 1$ *is obtuse,* color the hair orange.

(b) If your answer is $\angle 1$ *is not acute,* color the hair brown.

18. Identify the negation of the following: $AB + BC = AC$.

(a) If your answer is $AB + BC \neq AC$, color the eyes green.

(b) If your answer is $AB - BC = AC$, color the eyes blue.

19. Identify the inverse of the following: *If you live in Nevada, then you live in the U. S.*

(a) If your answer is If you do not live in Nevada, then you live in the U. S color the buttons purple

(b) If your answer is If you do not live in Nevada, then you do not live in the U. S. color the buttons green

20. Identify the inverse of the following: *If* $m\angle 1 + m\angle 2 = 90$, *then* $\angle 1$ *and* $\angle 2$ *are complementary.*

(a) If your answer is *If* $m\angle 1 + m\angle 2 \neq 90$, *then* $\angle 1$ *and* $\angle 2$ *are not complementary,* color the cheeks pink.

(b) If your answer is *If* $m\angle 1 + m\angle 2 = 90$, *then* $\angle 1$ *and* $\angle 2$ *are not complementary,* color the cheeks red.

21. Identify the inverse of the following: *If* $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$, *then* $\overleftrightarrow{AB}$ *and* $\overleftrightarrow{CD}$ *do not intersect.*

(a) If your answer is *If* $\overleftrightarrow{AB}$ *not* $\parallel \overleftrightarrow{CD}$, *then* $\overleftrightarrow{AB}$ *and* $\overleftrightarrow{CD}$ *intersect,* color the mouth, ears, face, neck, brown

(b) If your answer is *If* $\overleftrightarrow{AB}$ *not* $\parallel \overleftrightarrow{CD}$, *then* $\overleftrightarrow{AB}$ *and* $\overleftrightarrow{CD}$ *do not intersect,* color the mouth red and the ears, face, neck, and arms. pink

22. Identify the contrapositive of the following: *If you live in the Nevada, then you live in the United States.*

(a) If your answer is If you do not live in the U. S., then you live in the Nevada color the instrument yellow.

(b) If your answer is If you do not live in the U. S., then you do not live in the Nevada color the instrument gray.

23. Identify the contrapositive of the following: *Squares are parallelograms.*

(a) If your answer is If a figure is not a parallelogram, then it is not a square color the band uniform red and yellow

(b) If your answer is If a figure is not a parallelogram, then it is a square color the band uniform green and yellow

24. Identify the contrapositive of the following: *If* $m\angle 1 + m\angle 2 = 90$, *then* $\angle 1$ *and* $\angle 2$ *are complementary.*

(a) If your answer is *If* $\angle 1$ *and* $\angle 2$ *are not complementary, then* $m\angle 1 + m\angle 2 \neq 90$, outline the musical notes in black and color the notes MANY colors.

(b) If your answer is *If* $\angle 1$ *and* $\angle 2$ *are complementary, then* $m\angle 1 + m\angle 2 \neq 90$, outline the musical notes in red and color the notes the SAME color.

Artistic Tip: **When you are done coloring, it looks nice to outline the major features using a black crayon or marker.**