

Student: _____	Instructor: Manny Chaparro	Assignment: Practice Quiz 1
Date: _____	Course: Math 108 FA17	

1. Give the number of rows in the truth table for the compound statement.

$$(\sim q \wedge \sim w) \vee (q \vee w) \wedge x$$

The number of rows in the truth table is _____. (Simplify your answer.)

2. Give the number of rows in the truth table for the compound statement.

$$(\sim q \wedge t) \wedge s$$

The number of rows in the truth table is _____. (Simplify your answer.)

3. Decide whether the following is a statement. If it is a statement, decide whether or not it is compound.

Julia Roberts stars in movies.

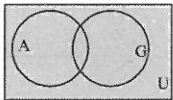
Choose the correct answer below.

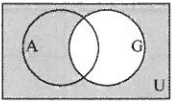
- Not a statement
- Statement, not compound
- Statement, compound

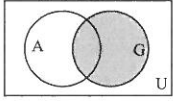
4. Select the Venn diagram that represents the set below.

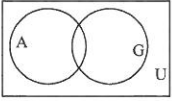
$$U'$$

Choose the correct answer below.

A.


B.


C.


D.


5. Answer true or false for the following statement.

$$\{\text{all whole numbers greater than 20 and less than 23}\} = \{21, 22\}$$

Choose the correct answer below.

- A.** The statement is false. The whole numbers 21 and 22 are not the only members. The set should include all numbers less than 23 and all numbers greater than 20.
- B.** The statement is true. The whole numbers 21 and 22 are the only whole numbers greater than 20 and less than 23.
- C.** The statement is false. The list of whole numbers is incomplete. There are other whole numbers between 20 and 23.
- D.** The statement is true. The whole numbers 21 and 22 are the only members in the union of {numbers greater than 20} and {numbers less than 23}.

6. Identify the statement as true or false.

$$6 \times 3 = 18 \text{ if and only if } 72 = 9 \times 8$$

Is the statement true or false?

- true
- false

7. Decide whether the following argument is valid or invalid, and give the form that applies.

If the band plays, then the people are happy.

The people are not happy.

The band does not play.

What is the form of the argument?

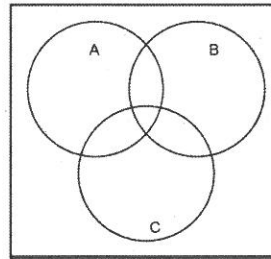
- fallacy of the inverse
 modus tollens
 modus ponens
 fallacy of the converse
 Disjunctive Syllogism

Is the argument valid?

- No
 Yes

8. Shade the Venn Diagram for the set $(A \cap C) \cup B$

Use the graphing tool to shade the regions.



9. Decide whether the following statement is true or false, and explain why.

If q is true, then $(p \wedge q) \rightarrow q$ is true.

Choose the correct answer below.

- A. True. If q is true, then this conditional falls into the special characteristic that if the antecedent of a conditional is true, then the entire conditional is automatically true.
 B. False. The answer cannot be true without first knowing the truth value of p . If p is false, then the conditional is true. If p is true, then the conditional is false.
 C. False. The answer cannot be true without first knowing the truth value of p . If p is true, then the conditional is true. If p is false, then the conditional is false.
 D. True. If q is true, then this conditional falls into the special characteristic that if the consequent of a conditional is true, then the entire conditional is automatically true.

10. Slips of paper marked with the numbers 7, 8, 9, and 10 are placed in a box. After being mixed, two slips are drawn simultaneously. Write out the sample space S , choosing an S with equally likely outcomes, if possible. Then give the value of $n(S)$ and tell whether the outcomes in S are equally likely. Finally, write the indicated events below in set notation.
- Both slips are marked with even numbers.
 - One slip is marked with an odd number and the other is marked with an even number.
 - Both slips are marked with the same number.

What is the sample space?

- A. $S = \{(7,8), (7,9), (7,10), (8,9), (8,10), (9,10)\}$
 B. $S = \{(7,8), (7,10), (9,8), (9,10)\}$
 C. $S = \{(7,9)\}$
 D. $S = \{7, 8, 9, 10\}$

The value of $n(S)$ is _____.

Are the outcomes equally likely?

- Yes
 No

a. Write the event both slips are marked with even numbers.

- A. $\{8, 10\}$
 B. \emptyset
 C. $\{(7,8), (7,9), (7,10), (8,9), (8,10), (9,10)\}$
 D. $\{(8,10)\}$

b. Write the event one slip is marked with an odd number and the other is marked with an even number.

- A. $\{(7,9)\}$
 B. $\{(7,8), (7,9), (7,10), (8,9), (8,10), (9,10)\}$
 C. $\{(7,8), (7,10), (9,8), (9,10)\}$
 D. $\{(8,10)\}$

c. Write the event both slips are marked with the same number.

- A. \emptyset
 B. $\{(7,9)\}$
 C. $\{7, 8, 9, 10\}$
 D. $\{(7,8), (7,9), (7,10), (8,9), (8,10), (9,10)\}$

11. Let p represent a true statement, and let q represent a false statement. Find the truth value of the given compound statement.

$$p \vee \sim q$$

Is the compound statement true or false?

- true
 false

12. Tell whether the conditional is true or false. Here T represents a true statement and F represents a false statement.

$$F \rightarrow (3 < 3)$$

Is the conditional true or false?

- false
 true