Ch. 6 Test Review
Finite Mathematics

Name_____

Date_____ Period_____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Write a negation for the statement.

1) $4x + 6y > 4$

Translate the symbolic compound statement into words.

2) Let p represent the statement "Jello is tasty" and let q represent the statement "Thursday is rectangular."

$\sim(p \vee \sim q)$

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

3) $\sim[\sim q \wedge (\sim p \vee r)]$

Let p represent the statement $11 < 8$, let q represent the statement $2 < 5 < 6$, and let r represent the statement $0 < 2$. Find the truth value of the given compound statement.

4) $\sim(\sim p \wedge \sim q) \wedge (\sim r \wedge \sim q)$

Use one of De Morgan's laws to write the negation of the statement.

5) $8 + 4 = 12$ and $5 - 2 \neq 3$

Construct a truth table for the compound statement.

6) $(s \wedge p) \wedge (\sim p \vee t)$

Solve the problem.

7) The guarantee on a brand of vacuum cleaner reads: "You will be completely satisfied or we will refund your money without asking any questions." Let s represent "You will be completely satisfied," r represent "We will refund your money," and q represent "We will ask you questions." Write the guarantee symbolically.

Use a truth table to decide if the statements are equivalent.

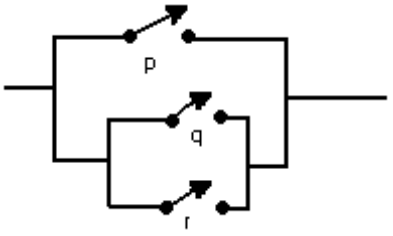
8) $q \rightarrow p$; $\sim p \rightarrow \sim q$

Find the truth value of the statement. Assume that p and q are false, and r is true.

9) $(q \wedge \sim r) \rightarrow (\sim p \vee r)$

Write a logical statement representing the circuit.

10)



Draw a circuit representing the following statement as it is given. Simplify.

11) $(p \wedge q) \vee (p \wedge p)$

12) $p \wedge (q \vee \sim p)$

For the given direct statement, write the converse, inverse, and contrapositive.

13) If I finish reading this novel, then I'll write a review.

Write the statement in the form "if p, then q."

14) A valid passport is necessary for travel to Europe.

15) All brides are beautiful.

Identify the statement as true or false.

16) $9 - 3 = 6$ if and only if $8 + 4 = 13$.

17) $4 + 7 \neq 13$ if and only if $8 \times 5 \neq 45$.

Construct a truth table for the statement.

18) $(p \wedge \sim q) \leftrightarrow (p \rightarrow q)$

Decide whether the argument is valid or invalid, and give the form (of valid or invalid argument) that applies.

19) If you eat well, you will be well.
If you are well, you will be happy.

If you eat well, you will be happy.

: Draw a circuit representing the following statement as it is given. Simplify.

20) $(p \vee q) \wedge (\sim p \wedge \sim q)$