

**Math 112 - Quiz 9**

October 3, 2018

Name key

Score \_\_\_\_\_

Show all work to receive full credit. Supply explanations when necessary. This quiz is worth 5 points. YOU MUST WORK INDIVIDUALLY.

1. (2 points) Let  $p$  be the statement "Sophie has been arrested" and let  $q$  be the statement "Bubba has never been arrested." Write each statement in symbolic form.

(a) If Sophie has not been arrested, then Bubba has not been arrested.

$$\sim p \rightarrow q$$

(b) Either Sophie or Bubba has been arrested.

$$p \vee \sim q$$

2. (2 points) Construct the truth table for  $\sim(p \vee q)$ .

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

3. (1 point) Suppose  $p$  and  $r$  are false statements, and  $q$  is a true statement. What is the truth value of  $q \vee (p \wedge \sim r)$ ?

$$\begin{aligned} T \text{ or } (F \text{ AND NOT } F) &= T \text{ or } (F \text{ AND } T) \\ &= T \text{ or } F = \boxed{T} \end{aligned}$$