## You must show your work to get full credit.

**1.** Make a truth table for  $p \wedge \sim (q \vee r)$ .

**2.** Make a truth table for  $p \wedge \sim q \wedge \sim r$ .

**3.** Are  $p \wedge \sim (q \vee r)$  and  $p \wedge \sim q \wedge \sim r$  logically equivalent? Write a sentence or two explaining why or why not.