Activity – Propositions & Systems – Solutions

1) $p \rightarrow \neg q$

if swimming at the New Jersey shore is allowed, then sharks have not been spotted near the shore.

2) Hiking is not safe on the trail whenever grizzly bears have been seen in the area and berries are ripe along the trail.

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

3) If 1 + 1 = 3, then 2 + 2 = 4

1 + 1 = 3 evaluates to false

2 + 2 = 4 evaluates to true

So rewrite the "if" replacing 1 + 1 = 3 with false and 2 + 2 = 4 with true and get the following:

if false, then true

false → true ("if" rewritten using the implication symbol)

true (evaluate the Boolean expression to get the answer)

4)

p	**q**	**~q**	**(p v ~q)**	**(p v ~q) → q**
F	F	T	T	F
F	T	F	F	T
T	F	T	T	F
T	T	F	T	T

5) "The message is scanned for viruses whenever the message was sent from an unknown system."

$q \rightarrow p$