MGF 1106 Review Exercises for 3.1 and 3.2

1 – 6. Write the negation of the statement.

1. All leopards are spotted.
2. Some people are funny.
3. All stop signs are red.
4. No student has a driver’s license.
5. Some judges are not elected.
6. Today is not Monday.

7 – 10. Use the following to write the statements in symbolic form.
\( p: \text{The dish is heavy.} \quad q: \text{The dish is hot.} \quad r: \text{The dish is filled with soup.} \)

7. The dish is heavy but it isn't hot.
8. The dish is not heavy or it is hot.
9. If the dish is filled with soup, then it is heavy and hot.
10. The dish is heavy if and only if it is filled with soup.

11 – 12. Use the following to write the symbolic statement in words.
\( p: \text{The dish is heavy.} \quad q: \text{The dish is hot.} \quad r: \text{The dish is filled with soup.} \)

11. \( \sim (p \rightarrow q) \)
12. \( q \rightarrow (\sim p \lor r) \)

13. Determine the truth value of the statement when \( p \) is true, \( q \) is false and \( r \) is false.
\( (p \land q) \lor \sim r \)

14. Determine the truth value of the statement when \( p \) is false, \( q \) is true and \( r \) is true.
\( (p \lor \sim q) \lor r \)

15. Determine the truth value of the sentence:
If Marianna is the capital of Florida and Chipola College is in Marianna, then Chipley is the capital of the United States.