§6.2 p352 Problem 11. If \( n(B) = 6 \), \( n(A \cup B) = 14 \), and \( n(A \cap B) = 3 \), find \( n(A) \).

**Solution.** Using the relationship \( n(A \cup B) = n(A) + n(B) - n(A \cap B) \) we have \( 14 = n(A) + 6 - 3 \), so \( n(A) = 11 \).

§6.2 p352 Problem 15. A survey of 1000 subscribers to the *Los Angeles Times* revealed that 900 people subscribe to the daily morning edition and 500 subscribe to both the daily and the Sunday editions. How many subscribe to the Sunday edition? How many subscribe to the Sunday edition only?

**Solution.** One solution.

Since 900 of the subscribers subscribe to the daily and there are 1000 subscribers in all, the remaining 100 must subscribe to the Sunday edition alone. How many subscribers are there in all for the Sunday edition? There are the 100 who subscribe to the Sunday edition alone and then there are the 500 who subscribe to both the daily and the Sunday. So, in all, there are \( 100 + 500 = 600 \) subscribers for the Sunday edition.

Another solution.

Set this up symbolically in a way that let’s us use the formula used above in Problem 11. Let \( S \) denote the set of all Sunday subscribers and \( D \) the set of all daily subscribers. Then we know \( n(S \cup D) = 1000 \), \( n(D) = 900 \), and \( n(S \cap D) = 500 \). From

\[
n(S \cup D) = n(S) + n(D) - n(S \cap D)
\]

we find

\[
1000 = n(S) + 900 - 500
\]

so

\[
n(S) = 600.
\]

In other words, there are 600 subscribers in all for the Sunday edition.

Now let \( Q \), say, denote the set of subscribers for the Sunday edition only, and \( R \) the set of subscribers for both the Sunday and the daily. Then \( Q \cup R \) is the same as \( S \), and \( Q \cap R \) is empty, so we have

\[
n(S) = n(Q \cup R) = n(Q) + n(R) - n(Q \cap R).
\]

This gives

\[
600 = n(Q) + 500 - 0
\]

so the number of subscribers for the Sunday edition only is

\[
n(Q) = 600 - 500 = 100.
\]

There are other possible solutions as well.