Where do you get your news

A poll of 100 Wor-Wic Students designed to find out how students kept up with current events revealed the following facts.

65 watched the news on television
39 read the newspaper
39 surfed the Internet
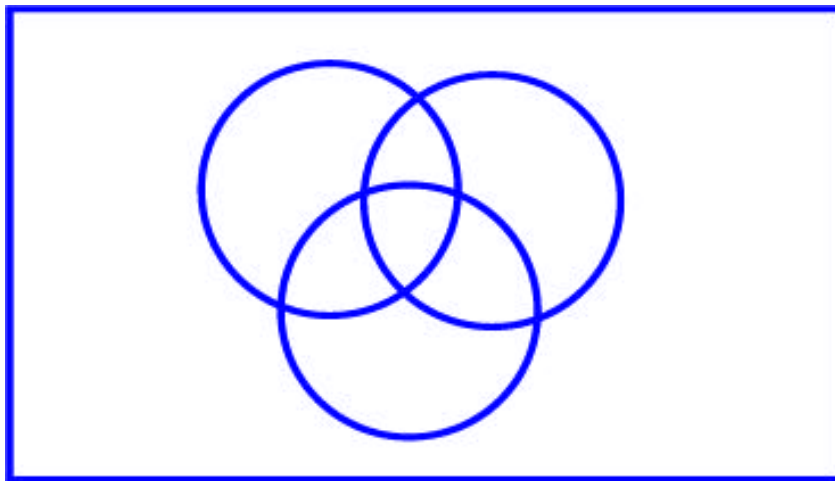20 watched the news on television and read the newspaper
27 watched television and surfed the Internet
9 read the newspaper and surfed the Internet
6 watched the news on television, read the newspaper, and surfed the Internet

Your task:
❖ Complete the Venn Diagram

❖ Using the Venn Diagram answer the following questions:

➢ How many of the 100 students surveyed kept up with current events by some other means than the three sources listed? Use mathematics to explain your answer. Use words symbols or both.

➢ How many of the 100 students surveyed read the newspaper but did not watch television news? Use mathematics to explain your answer. Use words symbols or both.

➢ How many of the 100 students surveyed used only one of the three sources listed to keep up with current events? Use mathematics to explain your answer. Use words symbols or both.
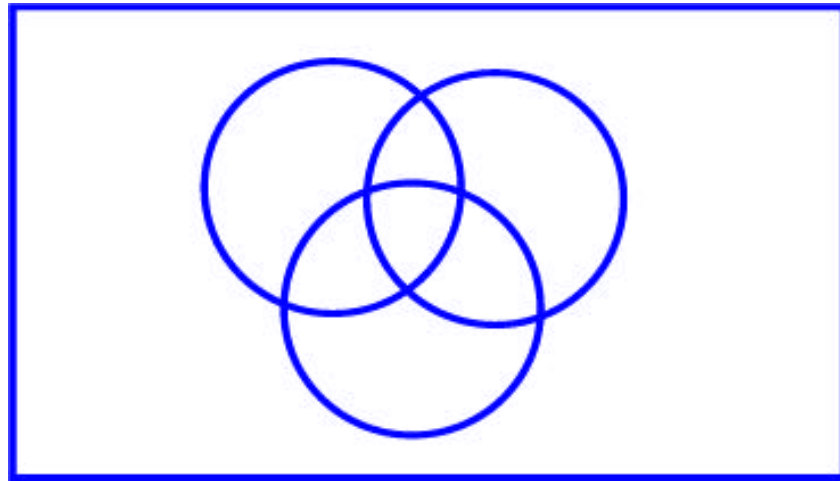
At a convention of 375 butchers (B), Bakers (A), and candlestick makers (C), there were

   50 who were both B and A but not C
   70 who were B but neither A nor C
   60 who were A but neither B or C
   40 who were both A and C but not B
   50 who were both B and C but not A
   80 who were C but neither A nor B

Your task
❖   Complete the Venn diagram below:

❖   How many at the convention were Bakers only? Use mathematics to explain your answer. Use words symbols or both.

❖   How many at the convention were butchers only? Use mathematics to explain your answer. Use words symbols or both.

❖   How many at the convention were candlestick makers only? Use mathematics to explain your answer. Use words symbols or both.

❖   How many were all three?

Homework

1) Use Venn diagrams to determine which, if any, of the following statements are true for all sets A, B, and C:

    a. $A \cup (B \cup C) \bullet (A \cup B) \cup C$ c. $A \cap (B \cap C) \bullet (A \cap B) \cap C$

    b. $A \cup (B \cap C) \bullet (A \cup B) \cap C$ d. $A \cap (B \cup C) \bullet (A \cap B) \cup C$

2) Given A = {0, 1, 2, 3, 4, 5}   B = {0, 2, 4, 6, 8, 10}   C = {0, 4, 8} Find each of the following:

    a. $A \cup B$ d. $B \cap C$

    b. $B \cup C$ e. $\overline{A} \cup B$

    c. $A \cap B$ f. $(A \cup B) \cup \overline{C}$

3) List all the subsets of {a, b, c}

4) Verify that $\overline{A \cup B} \bullet \overline{A} \cap \overline{B}$ in two different ways as follows:

    a.   Let U = {1, 2, 3, 4, 5, 6}, A = {2, 3, 5} and B = {1, 4}. List the elements of the set $\overline{A \cup B}$ and $\overline{A} \cap \overline{B}$. Do the two sets have the same numbers?

    b.   Draw and shade a Venn Diagram for each of the sets $\overline{A \cup B}$ and $\overline{A} \cap \overline{B}$. Do the Venn Diagram look the same?