1. Out of 40 middle school athletes, 19 play football and 27 play basketball. Eight of these athletes play both sports.

Use the diagram below to organize the information from the word problem and answer the questions that follow. Remember to label your circles.

- How many students play only football? ________
- How many students play only basketball? _______
- How many students are neither football players nor basketball players? ________
- What is the probability that a randomly-chosen student from this group is only a football player? ________
2. Thirty students were asked about their favorite subjects in school. Fourteen students prefer math, 12 students like English, and 17 favor science. Four of these students enjoy all three subjects. Nine of them like math and science, and 6 of them prefer math and English. Six students prefer only science.

Use the diagram below to organize the above information, then answer the questions that follow. Remember to label your circles.

![Venn Diagram]

a. How many students like only English? _____

b. How many students like English and science? ______

c. How many students like only English and science? ______

d. Are there any students that don’t like any of the three subjects? _____
   If yes, then how many? ______

e. What is the probability that a student likes only math? _____
Create *your own* Venn Diagram to solve the following problem.

80 people eating at a fast food restaurant were asked what they had ordered. 41 people ordered hamburgers. 30 people ordered chicken nuggets. 53 people ordered a soft drink. Five people ordered all three of these items. 25 people ordered a soft drink with their burger, and 18 people ordered chicken nuggets and a soft drink. Three people ordered *only* chicken nuggets.

Now, answer the following questions:

1. How many people only ordered a soft drink?

2. How many ordered chicken nuggets and a hamburger?

3. How many people ordered none of these items?

4. What is the probability that a randomly-chosen patron from this group ordered only a hamburger?

5. *Explain* how to use a Venn Diagram to solve this problem.