Chapter 1

Section 1.1

Do problems 14, 15, and 19 on page 57 of the textbook.
Answers are in the back of the textbook.

Section 1.2

Do problems 5, 7, and 20 on page 57 of the textbook.
Answers are in the back of the textbook.

Chapter 2 **Section 2.1**

1. Do problems 1–4 on page 121.

2. Consider the sets:

R = {Badgers, Buckeyes, Boilers}

S = The set of words beginning with "B."

Answer "True" or "False," and explain why.

a. $R \subset S$

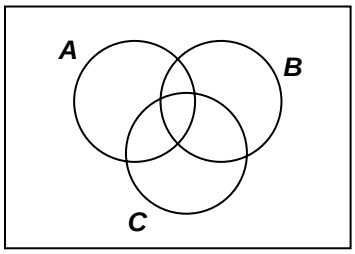
b. Boilers $\in S$

c. $R \cap S = \varnothing$

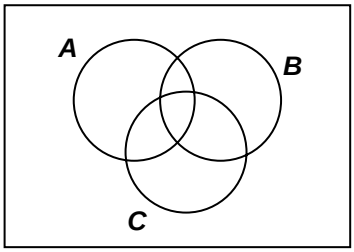
d. Beryllium $\in R'$

3. Darkly shade the regions listed:

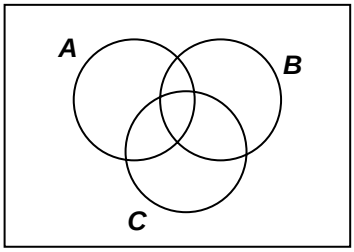
a. $A \cap (B \cup C)$



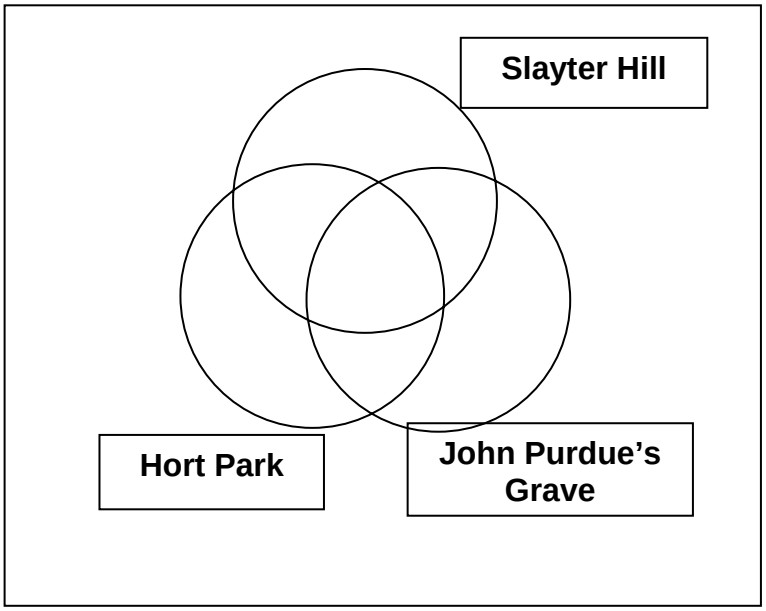
b. $(A \cup C) \cap B$



c. $B' \cap (A' \cap C)$



4. Use the Venn diagram to represent the following situation, then answer the questions that follow:
45 Purdue freshmen were asked about the Purdue landmarks they had visited. Three students had visited Slayter Hill, Hort Park, and John Purdue's Grave. Eighteen students had been to Slayter Hill. Twenty students had been to John Purdue's Grave. Eight students had been to John Purdue's Grave and Hort Park. Seven students had been to Hort Park and Slayter Hill. Eight students had been only to Hort Park, and seven students had only visited John Purdue's Grave."



a. How many of these had visited Slayter Hill and John Purdue's Grave only?

b. How many of these students hadn't visited any of the three landmarks?

c. How many of the students that did not visit John Purdue's Grave did visit Hort Park?

Chapter 3 **Section 3.1**

1. Review examples A–G in the textbook (pages 125–129). Can you use the different numeration systems to write numbers? To practice, try problem 1 on page 210.

2. Using minimal collections of base-five pieces to represent the given number of unit squares, fill in the blank spaces in the table below:

Number of unit squares	Long-flats	Flats	Longs	Units
48				
268				
	1	3	3	0

3. Represent the pieces needed to represent 450 total units in the following different bases. Your work should include a sketch of the pieces and the numeral in the correct base notation.

a. Base six b. Base twelve c. Base seven

4. Robin counted her collection of stuffed elephants and proclaimed "I have 103 elephants!" Her brother said: "No, silly, you have 19. I counted them myself!" Robin has been learning about numbers in different bases. Her brother knows only about base ten. In what base was Robin reporting her count? Explain how you know.

ANSWERS

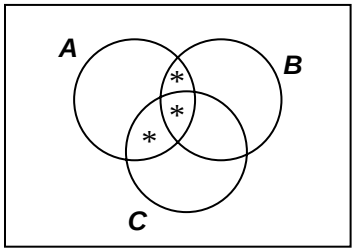
Chapter 2

1. Answers are in the back of the textbook

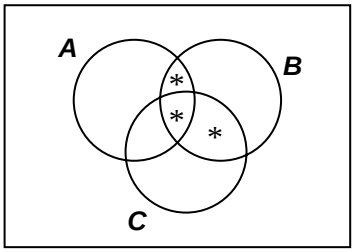
2. a. True
   b. True
   c. False, in fact, $R \cap S = R$
   d. True

3. The regions that should be shaded are those containing an *:

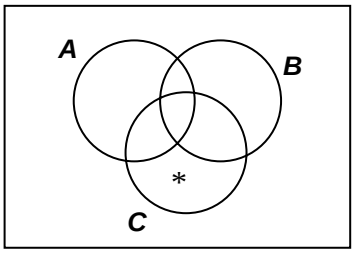
a. $A \cap (B \cup C)$



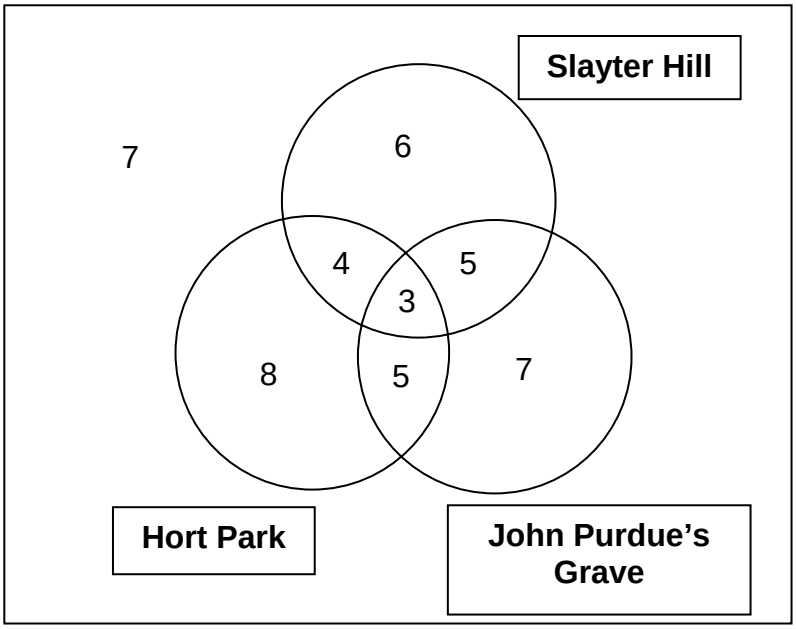
b. $(A \cup C) \cap B$



c. $B' \cap (A' \cap C)$



4.



a. 5
b. 7
c. 12

Chapter 3

1. Answers are in the back of the textbook.

2.

Number of unit squares	Long-flats	Flats	Longs	Units
48	**0**	**1**	**4**	**3**
268	**2**	**0**	**3**	**3**
215	1	3	3	0

3. I've omitted the sketches, but I'm giving the numeral in correct base notation.
a. 2030_{six} b. 316_{twelve} c. 1212_{seven}

4. To report 19 items as "103," Robin must be in base four. Then "103" would be one flat (with 16 total units) and three units.