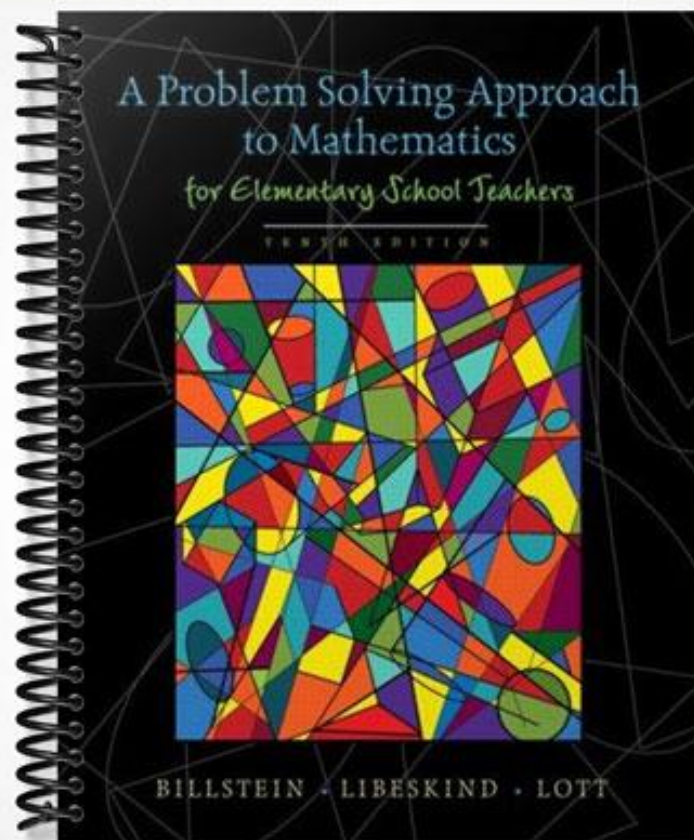


SOLUTIONS MANUAL



Chapter 2

Numeration Systems and Sets

Activity 1

Box 1

14 tens, 23 units, 13 units, 13 units, 1 hundreds

Answers will vary. Writing a number in several different ways develops understanding of place value and of the regrouping (renaming) process used in computational algorithms.

Activity 2

1. 14
2. 53
3. 31
4. 222 or 141
5. 2, 20, 200, 11, 101, or 110
6. 3, 12, 21, or 30
7. 4, 13, 22, 31, or 40
8. 130, 121, 112, or 103

Activity 3

Box 1

2. a. SRS, SRT, SRC, SRR (small, red, rhombus)
LRS, LRT, LRC, LRR
- b. 8
- c. 32
3. a. SGS, SGT, SGC, SGR, LGS, LGT, LGC, LGR,
SYS, SYT, SYC, SYR, LYS, LYT, LYC, LYR,
SBS, SBT, SBC, SBR, LBS, LBT, LBC, LBR
- b. The pieces are outside the loop.
4. a. Answers will vary. Sample responses: the set of blue pieces; the set of circles
- b. You could pair up the pieces in set A with the pieces in set B to make sure there are no pieces left over in either set. That is, you could create a one-to-one correspondence between the elements of the two sets.
- c. The set of pieces that are not large.

Activity 4

1. b. If the loops did not overlap, there would be no way to place the pieces that are Large AND Red.
2. a. (either) **RED or LARGE**
- b. 20
3. a. **RED and LARGE**
- b. 4
4. Answers will vary; one possible solution: **Square and Circle**

Activity 4 Continued

5. Answers will vary; one possible solution: **Not Square** and **Triangle**

6. a. 12 b. A

7. **Not Square** and **Blue**

Since both loops contain pieces that are large and pieces that are small, the labels do not involve size. There are two possibilities for the label for the loop on the left, Not Yellow (since it contains pieces with all the other colors) or Not Square (since it contains only circles, squares, and rhombuses). Suppose the correct label is Not Yellow. Then the small red square would go in that loop. Since it isn't, the label for the left loop cannot be Not Yellow. Thus, the label must be Not Square. Similarly, the label for the right loop could be Blue or Not Rhombus. However, if the label was Not Rhombus, then the small red square would be in the loop. Since it isn't, the label must be Blue.