NAME_____

Module 2 **Whole Number Operations**
Lesson 5 **Problem-solving Strategies**

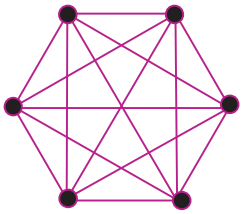
Guided Practice 2.5

Set 1

Draw a Diagram **to solve.**

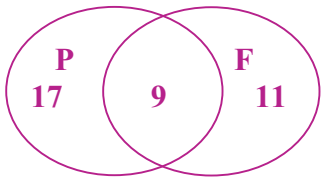
1. Six teams are in a tournament. Each team plays every other team once. How many games are there?

Let six points represent the teams. Then, draw line segments so that each point is connected to every other point once. There are 15 line segments, so there are 15 games in the tournament.



15 games

2. A band has 50 musicians. Twenty-six can play the piano, 20 can play the flute, and nine can play both. How many band members can play neither piano nor flute?



17 + 9 + 11 = 37
50 – 37 = 13
13 play neither instrument.

Set 2

Make a List **to solve.**

1. How many four-digit numbers contain only two, only four, or both two and four?

2,222 2,422 4,444 4,244
2,224 2,424 4,442 4,242
2,242 2,442 4,424 4,224
2,244 2,444 4,422 4,222
16 numbers

2. Ben wrote all the numbers from one to 999 that had four in both the tens place and in the ones place. How many fours did Ben write?

44, 144, 244, 344, 444, 544, 644, 744, 844, 944
21 fours

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Set 3

***Guess and Check* to solve.**

1. Use each of the digits one through nine at least once, and form three four-digit odd numbers with the sum of 5,959.

If I pick 2,687 and 1,453, all the digits have been used except nine and the sum of the last two digits of the numbers ends in zero. Then, subtract that sum from 5,959 to get our third number, 1,819, which has nine as the last digit. The three numbers are 2,687; 1,453; and 1,819.

2,687
1,453
5,959 – (2,687 + 1,453)

2,687
1,453
+ 1,819
5,959✓

Use any strategy to solve.

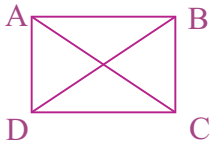
2. There were four teams in a volleyball tournament. Each team played two games with each of the other teams. How many games were played?

Make a list. Let the four teams be A, B, C, and D. Then, use the letters to make every possible combination of two. Each combination happens two times, so double the number of games.

Teams			
A	**B**	**C**	**D**
Games Played			
AB	**AB**	**BC**	**BC**
AC	**AC**	**BD**	**BD**
AD	**AD**	**CD**	**CD**

12 games

Alternate answer:
Draw a diagram. The drawing shows six games played between the teams A, B, C, and D. Double six, because each team played every other team twice.



6 games × 2
12 games

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