Table of Contents

Introduction

About this Book

The variety of math problems in *Daily Warm-Ups: Problem-Solving Math* will provide students with enough problem-solving practice to introduce your math period every day for an entire school year. For each warm-up, allow 10 to 15 minutes for reading, interpreting, and solving the problems before you correct them as a class.

Students can work on the problems in this book independently, in groups, or as a whole class. Decide which approach works best for your students, based on their math skill levels and reading competence.

The book is divided into two sections. The first section of the book introduces five specific problem-solving strategies with math problems that are not directly addressed to a specific operation or concept. The math strategies are as follows: Creating an Organized List, Making a Tree Diagram, Working Backwards, Using Simpler Numbers, and Using Logical Reasoning. (See pages 8–12 for examples of math problems to which these types of strategies apply.) The second section of the book contains more traditional problems in operations, numeration, geometry, measurement, data analysis, probability, and algebra. The general math area and focus addressed in each warm-up is noted at the top of each page.

These activities can be used in a variety of ways, but they were designed to be introductory warm-ups for each math period. The 250 warm-ups are individually numbered and should be used in any order according to your main math lessons. Choose warm-ups that cover concepts previously taught so that the warm-up can serve as a review.

NCTM Standards

The math problems in this book have been correlated to the National Council of Teachers of Mathematics (NCTM) standards. See the correlation chart on pages 4–7. You will find the standards and expectations along with the warm-up numbers to which they relate. As the NCTM math standards make clear, problem solving is the critical component in math instruction. It is the component that makes general operations knowledge both essential and useful. Problem solving is the basic element in the concept of math as a method of communication.

Warm-Up 5

What's the Problem?

Jimmy and Allison attend a sports camp during the summer at the local college. It is open Monday through Friday. The camp runs for 4 hours a day and each activity takes 1 hour. They swim for 1 hour every day. Jimmy plays basketball 3 days a week and volleyball 2 days a week. He never plays the same sport 2 days in a row or on the same day. They must spend 1 hour reading in the children's library each day. Allison takes gymnastics every day that Jimmy plays basketball and she plays table tennis the other days. Jimmy takes tennis on the days Allison does gymnastics and he runs laps on the other days. Allison runs laps on the days she does gymnastics and she plays softball on the other days.

Create a weekly schedule of activities for each person.

REMINDER

An organized list helps you solve problems by presenting information in a systematic way.

Follow these steps:

1. Think of ways to combine the information into a list or chart.
2. Decide on a starting point and work in order.
3. Keep one item the same while others change.
4. Fill in any gaps.
5. Record the solution so it is easy to understand.

Work It Out

Jimmy

Monday	Tuesday	Wednesday	Thursday	Friday

Allison

Monday	Tuesday	Wednesday	Thursday	Friday

How I Solved the Problem

Warm-Up 115

What's the Problem?

Work It Out

Allison had to babysit her little brother, Jason, and his friend Justin, while their mothers went shopping. She decided to hide treasures for the boys to find—but they had to be able to understand the map she made for them.

What did she hide for the boys at each of these coordinate pairs?

(15, 1) _____

(2, 13) _____

(12, 7) _____

(8, 3) _____

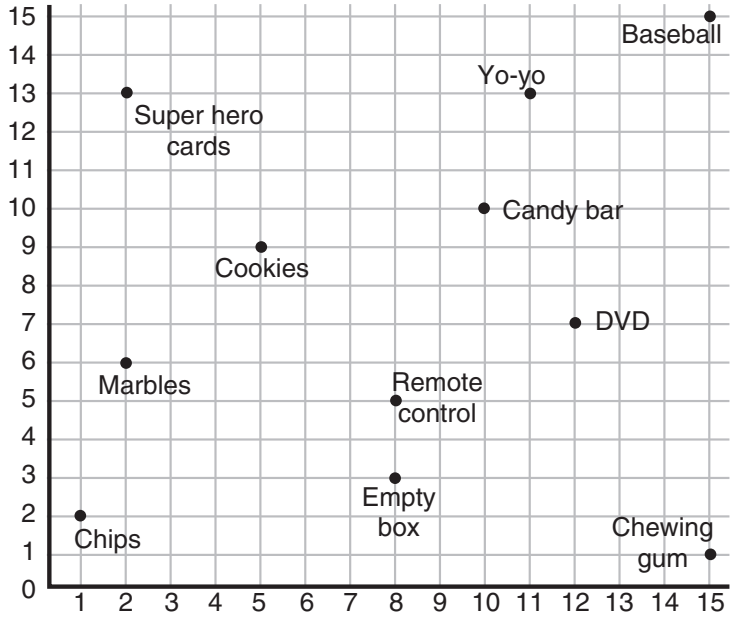
(5, 9) _____

(15, 15) _____

(11, 13) _____

(8, 5) _____

(10, 10) _____



Warm-Up 116

What's the Problem?

Work It Out

What are the coordinates for these prizes on the map?

Marbles _____

Cookies _____

DVD _____

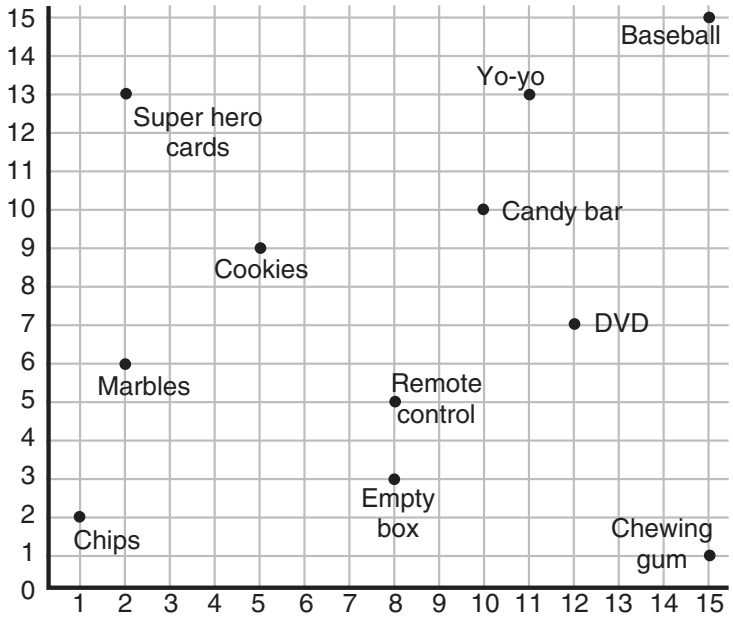
Chewing gum _____

Candy bar _____

Chips _____

Baseball _____

Yo-yo _____

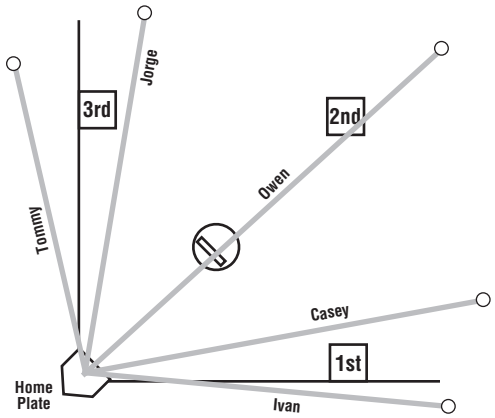


Warm-Up 147

What's the Problem?

Work It Out

Casey was watching batting practice with his baseball team and thinking about angles and baseball. His teammate, Tommy, hit a low line drive that went into foul territory. The team's best player, Owen, hit a line drive right over second base. Casey hit a fair ball just inside the first base line. Ivan hit a ball just off the first base line in foul territory. Jorge hit a ball just inside third and down the line.



Identify the angles formed by the named lines as acute or obtuse.

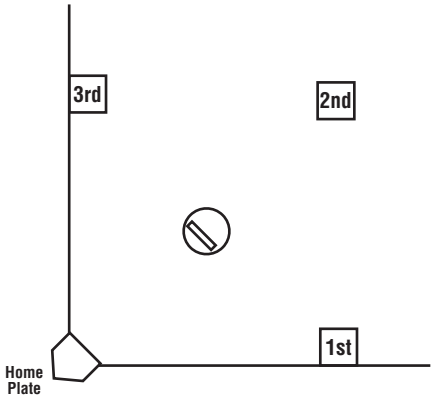
1. **Jorge's hit and 1st base line** _____
2. **Ivan's hit and 3rd base line** _____
3. **Owen's and Casey's hits** _____
4. **Casey's hit and 3rd base line** _____
5. **Ivan's and Owen's hits** _____
6. **Tommy's and Ivan's hits** _____

Warm-Up 148

What's the Problem?

Work It Out

Use the diagram to help you answer the following questions.



1. **What kind of angle is formed by the lines from home plate to 3rd base and home plate to 1st base? How many degrees are formed inside this angle?**

   _____

2. **What kind of angle is formed outside those same lines in question 1? How many degrees are formed in this outside angle?**

   _____

3. **What kind of angle is formed by a batted ball that hits the pitcher's mound and bounces between 3rd base and 2nd base?**

   _____

Warm-Up 173

What's the Problem?

Megan and Jonathan surveyed the foods chosen by the sixth graders in the school cafeteria. They recorded the foods bought from the cafeteria and those who brought their lunch and recorded the data on the tally chart.

How many students . . .

1. **chose corn dogs?** _____
2. **chose hot dogs?** _____
3. **chose a veggie plate?** _____
4. **brought their lunches?** _____
5. **were surveyed?** _____

Work It Out

Corn Dogs
𝍸 𝍸 𝍸 𝍸 I
Hot Dogs
𝍸 𝍸 𝍸 𝍸 𝍸 II
Veggie Plate
𝍸 II
Brought Lunch
𝍸 𝍸 𝍸 III

Warm-Up 174

What's the Problem?

Megan and Jonathan's tally chart shows the number of students who bought food from the cafeteria and those who brought their lunches from home.

What percentage of the students . . .

1. **brought lunch from home?** _____
2. **bought corn dogs?** _____
3. **bought hot dogs?** _____
4. **bought a veggie plate?** _____
5. **How would the people running the school cafeteria use this data?**

_____

6. **What data from this chart might be useful to parents?**

_____

Work It Out

Corn Dogs
𝍸 𝍸 𝍸 𝍸 I
Hot Dogs
𝍸 𝍸 𝍸 𝍸 𝍸 II
Veggie Plate
𝍸 II
Brought Lunch
𝍸 𝍸 𝍸 III