## Table of Contents

## Add \& Subtract

Clock arithmetic 69-82
Add, Subtract \& Multiply
Other bases 89-97

## Addition

CrossNumberTM Puzzles 17-21
Replace the letters 134

## Analogies

Analogies in proportions 152-75
Identifying analogous relationships 31-7
Rearranging analogies 40-6
Reasoning by analogy 47-50
Stating analogies in standard form 38-9

## Analogy preparation

Finding common attributes 29 Identifying synonyms 27-8 Identifying the outsider 30
Clock arithmetic 69-82
Diophantine problems 67, 129, 148, 178

## Fractions

Analogies in proportions 152-75
Index of refraction 115
Miscellaneous problems 132-3, 143, 150
Glossary 215-6
Index 217
Index of refraction 115
Indirect proof problems 159-75

## Logic

Counterexamples 8-16, 73-4
Drawing inferences 7, 22-6, 63, 85, 118, 142, 147, 149, 176
Fantasy or true to life? 3-6
Indirect proof 159-75
Math Mind Benders ${ }^{\oplus}$ 123-8
Mind Benders ${ }^{\circledR}$ 138-41
Miscellaneous problems 144
Truth-tellers and liars 1-2
Water jugs problems 68, 84, 130-1, 151
Weighing balls 100, 179

## Mixed operations

Math Mind Benders ${ }^{\circledR}$ 123-8
Operators and order of precedence 5161
Number patterns 108-10
Order of operations 51-61
Other bases 89-97
Puzzles
CrossNumber™ Puzzles 17-21
Math Mind Benders ${ }^{\circledR}$ 123-8
Rearrange letters 66, 83, 98, 116, 136, 177
Replace the letters 134
Raising to a power
Math Mind Benders ${ }^{\circledR} 124$
Operators and order of precedence 5161
Teaching Suggestions/Answers
Answers and Comments 183-213
Arithmetic Levels of This Series 182
General Information 181-2
Introduction 181
References 182-3
Teaching Thinking 183

## Verbal reasoning problems

Finding common attributes 29
Following directions 62, 117
Identifying analogous relationships 31-7
Identifying synonyms 27-8
Identifying the outsider 30
Rearranging analogies 40-6
Reasoning by analogy 47-50
Relevant information 101-7
Stating analogies in standard form 38-9

## Word problems

Diophantine problems 67, 129, 148, 178
Miscellaneous problems 64-5, 86-8, 99, 119-22, 132-3, 135, 137, 143-6, 150
Rearrange letters 66, 83, 98, 116, 136, 177
Speed of light 111-5

## Clock Arithmetic

## Lesson

Suppose we had a clock that went only from 1 to 8 instead of from 1 to 12 . We could do the same kind of arithmetic with it that we do for a 12-hour clock.

With a 12-hour clock, we count from
1 to 12 and then start over. With an 8-
 hour clock, we would count from 1 to 8 and then start over.

## Examples

If it is 5 o'clock now, then 4 hours from now it will be 1 o'clock.
If it is 2 o'clock now, then 2 hours ago it was 8 o'clock, and 3 hours ago it was 7 o'clock.

## Directions

You are told what time it is now. You are asked to find a different time. Use an 8-hour clock.

## Example

Problem: 7 o'clock; 2 hours from now
Answer: 1 o'clock

## Problems

127. 7 o'clock; 3 hours from now
128. 3 o'clock; 3 hours ago
