

# Table of Contents

## How to Use

- 1 Solving logic problems using charts
- 2 Union and intersection with Venn diagrams; Mobius strip
- 3 Using 3-part Venn diagrams to solve word problems
- 4 Using a compass rose to explore angles; word problems requiring equations
- 5 Forming patterns by bisecting lines and angles
- 6 More patterns formed by bisection; word problems
- 7 Using known information to find out about other lines and angles in a drawing
- 8 Using known information to find the sizes of angles in a geometric drawing
- 9 Challenge area problems; exploration of what happens when dimensions of a figure are doubled or squared
- 10 Golden rectangle
- 11 More logic problems
- 12 Advanced construction - equilateral triangle, regular octagon, regular hexagon in a circle
- 13 Finding the area of irregular polygons on a grid of dots
- 14 Finding the area of any triangle when three sides are known; relationships between dimensions and volume
- 15 Word problems involving volume
- 16 Visualization of the formula for the area of a circle; finding different volumes with same surface area.
- 17 Archimedes and the relationships between surface area and volume of spheres and cylinders
- 18 Using Pythagorean theorem to find sight distance from a tower, mountain, or airplane
- 19 Volume and surface area of oblique prism; more volume and surface area questions
- 20 Simple vectors using a protractor to measure angles
- 21 Finding the area of a ring by measuring the chord of the circle
- 22 Introduction to the language of formal logic
- 23 The converse in formal logic
- 24 Using remote interior angles and other information to find angle measures
- 25 Geometric proofs
- 26 More geometric proofs
- 27 Proofs involving circles, tangents and chords
- 28 Proofs with circles and inscribed angles
- 29 Applications using tangent function
- 30 Applications using sin and cosine functions

## Solutions

## Glossary

## Index