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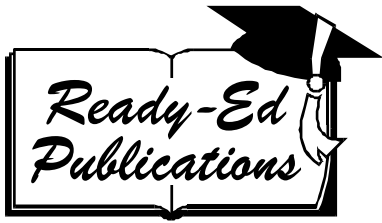
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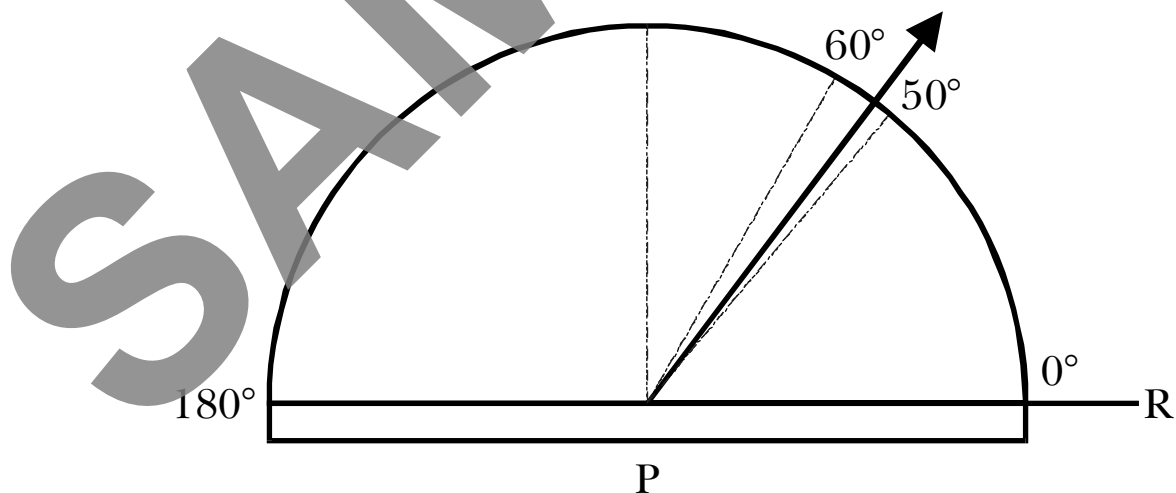


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An Angle on Geometry

An introduction to geometry, angles,
triangles, and other 2D shapes.



Written by Jane Bourke. © Ready-Ed Publications - 2001.

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SAMPLE

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TEACHERS' NOTES

This book is designed to complement the geometry component of the space strand of the curriculum. It provides a basic introduction to new concepts as well as activities that will consolidate the skills and ideas associated with introductory geometry.

The book is designed to be used sequentially as certain skills need to be mastered in order to complete some of the later activities. Many of the activity pages explain the various mathematical concepts and provide examples, however, it is assumed that these ideas will be discussed in class prior to students completing the worksheets.

The activities in this book cover the major learning areas such as identifying different types of angles, using a protractor to measure angles, using known rules to calculate the size of angles, and constructing angles using either a compass or a protractor.

Angles in a wide range of 2D objects are explored, specifically, the angles of scalene, isosceles and equilateral triangles, parallel and intersecting lines, and angles in a circle. In addition, there are several pages that apply many of these concepts to angles in everyday situations.

The book also explores the mathematics of circles examining features such as chords, arcs, angles, and various shapes in circles.

Additional materials:

Before starting this unit of work, ensure that each student has access to a compass, a protractor, and a ruler. It is probably best to use pencils rather than pens for construction activities.

Important notes about diagrams:

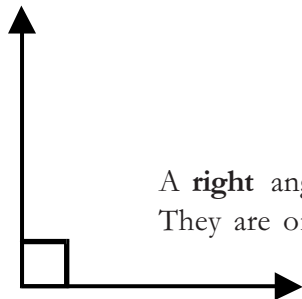
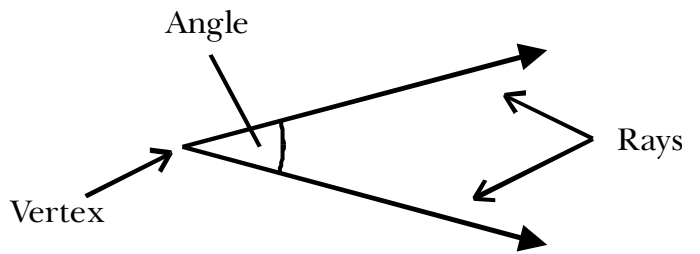
Occasionally some angles may not appear to be what the answers specify. This is due to slight variations in the printing process and, unfortunately, these differences are beyond our control.

Rays in diagrams would normally have arrow-heads but they have been omitted in this book to allow more room.

Also, many 90° angles have not been marked with squares to allow diagrams to be more clear. Angles that look 90° generally are 90° such as those on pages 7, 14, and 32.

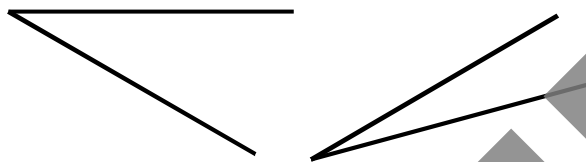
LOOKING AT DIFFERENT ANGLES

An angle is the amount of turn between two lines around a common point. The lines are known as rays and the point at which they meet is called a **vertex**.

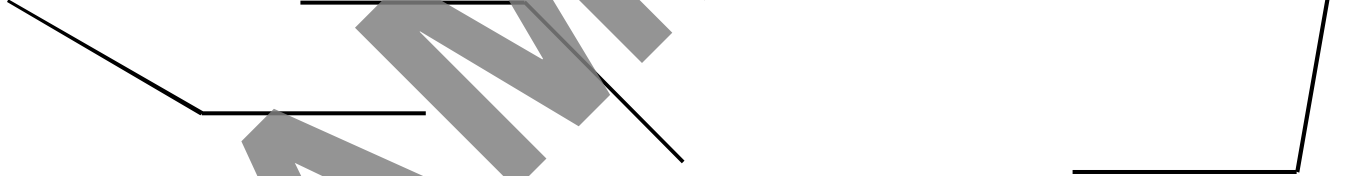


A **right** angle is an angle that measures exactly 90° . They are often marked with a square at the angle.

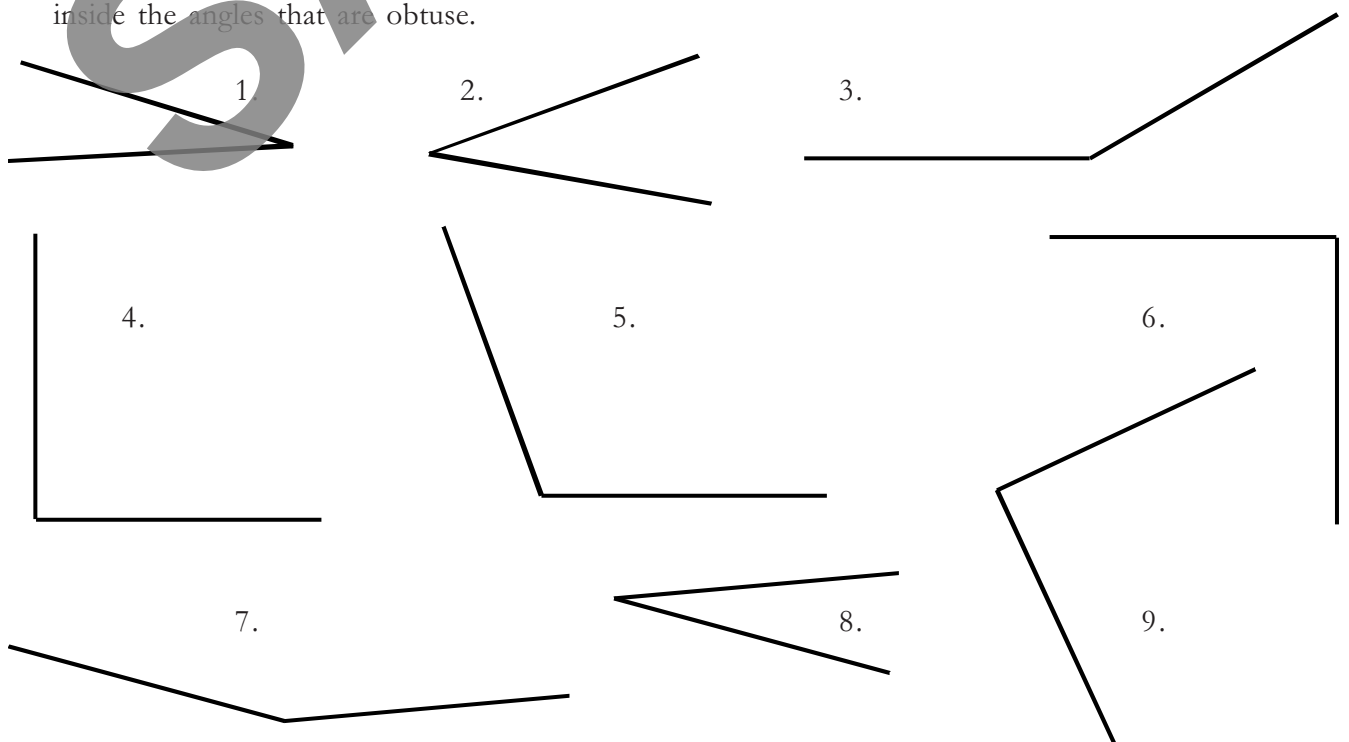
An **acute** angle is an angle less than 90° . Draw two more examples below.



An **obtuse** angle measures between 90° and 180° . Draw two more examples below.



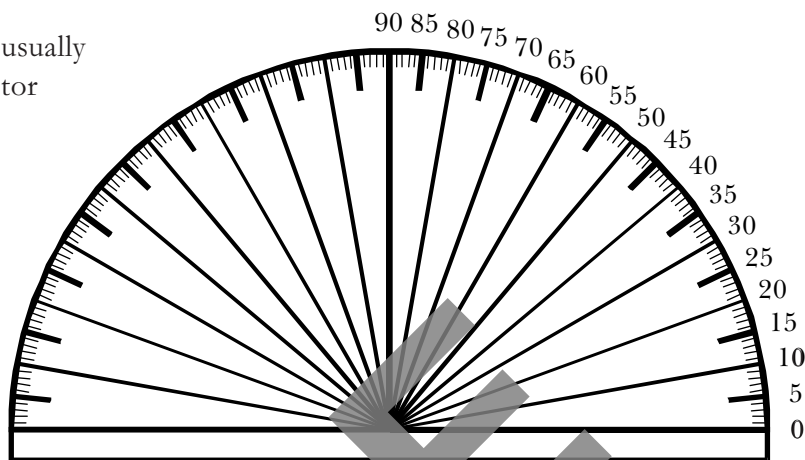
Tick the angles below that are right angles. Draw a circle around the acute angles and put a cross inside the angles that are obtuse.



MEASURING ANGLES 11

Angles are measured in degrees. This is usually expressed with this symbol $^{\circ}$. A protractor is used to measure angles.

Using a protractor follow the example below and then complete the activities.



To measure an angle:

1. Place the center of the protractor on the corner or sharpest point (vertex) of the angle.
2. Turn the protractor so that the base line runs along one of the lines that forms the angle.
3. You can then read the size of the angle from the position of the second line. For example this angle is approximately _____ $^{\circ}$

Most protractors number the angles both clockwise and anti-clockwise. Make sure that you start at 0 and follow the correct set of numbers.

Measure the angles below and write down the type of angle for each one, e.g. acute, obtuse, or right.

a.
size:
type:

b.
size:
type:

c.
size:
type:

d.
size:
type:

e.
size:
type:

f.
size:
type:

g.
size:
type:

h.
size:
type:

i.
size:
type: