

Important Concepts . . .

# Preview Review



**Mathematics**

**Grade 5**

**W2 - Lesson 4: Perimeter and Area  
Measurements**

## Important Concepts of Grade 5 Mathematics

W1 - Lesson 1 .....	Number Sense Numbers 0 to 100 000
W1 - Lesson 2 .....	Exploring Proper Fractions
W1 - Lesson 3 .....	Exploring Decimals
W1 - Lesson 4 .....	Numbers With Up to 2 Decimal Places
W1 - Lesson 5 .....	Multiplication
W1 - Quiz	
W2 - Lesson 1 .....	Division
W2 - Lesson 2 .....	Collecting Data and Analyzing Patterns
W2 - Lesson 3 .....	Estimating and Taking Measurements
W2 - Lesson 4 .....	Perimeter and Area Measurements
W2 - Lesson 5 .....	Metric Measurements
W2 - Quiz	
W3 - Lesson 1 .....	Volume, Capacity, Mass, and Time
W3 - Lesson 2 .....	2-D Shapes and 3-D Objects
W3 - Lesson 3 .....	Transformations
W3 - Lesson 4 .....	Statistics and Probability
W3 - Lesson 5 .....	Chance and Probability
W3 - Quiz	

## Materials Required

Protractor  
Ruler  
Calculator

A textbook is not  
needed.

This is a stand-alone  
course.

Mathematics Grade 5

Version 5

Preview/Review W2 - Lesson 4

Publisher: Alberta Distance Learning Centre

Author: Leslie Friesen

In-House Teacher: Sue Rees

Project Coordinator: Dennis McCarthy

Preview/Review Publishing Coordinating Team: Nina Johnson,

Laura Renkema, and Donna Silgard



Alberta Distance Learning Centre has an Internet site that you may find useful. The address is as follows: <http://www.adlc.ca>

The use of the Internet is optional. Exploring the electronic information superhighway can be educational and entertaining. However, be aware that these computer networks are not censored. Students may unintentionally or purposely find articles on the Internet that may be offensive or inappropriate. As well, the sources of information are not always cited and the content may not be accurate. Therefore, students may wish to confirm facts with a second source.

### ALL RIGHTS RESERVED

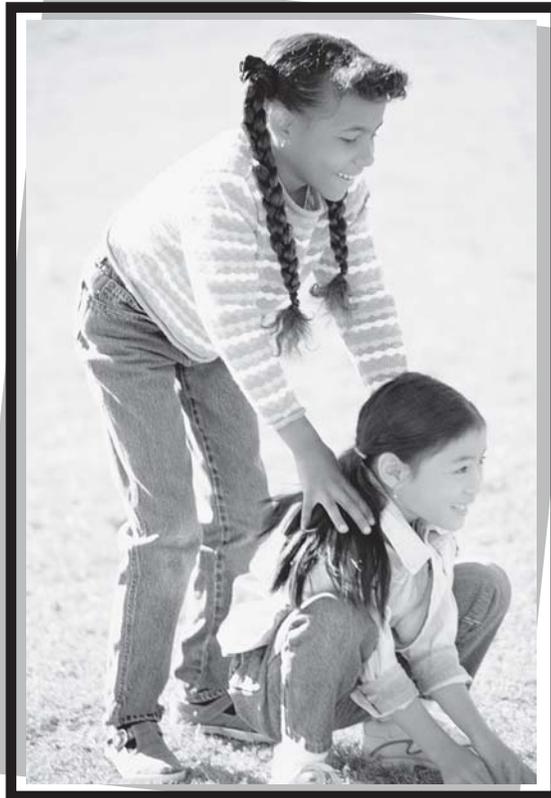
Copyright © 2007, by Alberta Distance Learning Centre, 4601-63 Avenue, Barrhead, Alberta, Canada, T7N 1P4. Additional copies may be obtained from Alberta Distance Learning Centre.

No part of this courseware may be reproduced or transmitted in any form, electronic or mechanical, including photocopying (unless otherwise indicated), recording, or any information storage and retrieval system, without the written permission of Alberta Distance Learning Centre.

Every effort has been made both to provide proper acknowledgement of the original source and to comply with copyright law. If cases are identified where this effort has been unsuccessful, please notify Alberta Distance Learning Centre so that appropriate corrective action can be taken.

**IT IS STRICTLY PROHIBITED TO COPY ANY PART OF THESE MATERIALS UNDER THE TERMS OF A LICENCE FROM A COLLECTIVE OR A LICENSING BODY.**

# Preview/Review Concepts for Grade Five Mathematics



*W2 - Lesson 4:  
Perimeter and Area  
Measurements*

# OBJECTIVES

By the end of this lesson, you should

- calculate perimeter of various shapes
- calculate area of various objects
- use a three-step problem-solving process

# Glossary of Terms

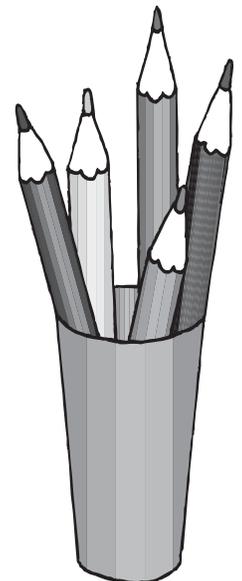
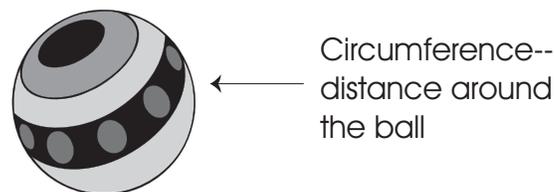
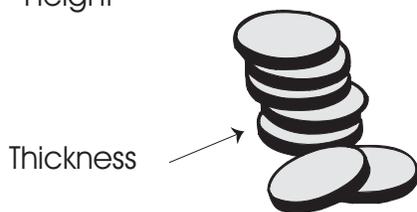
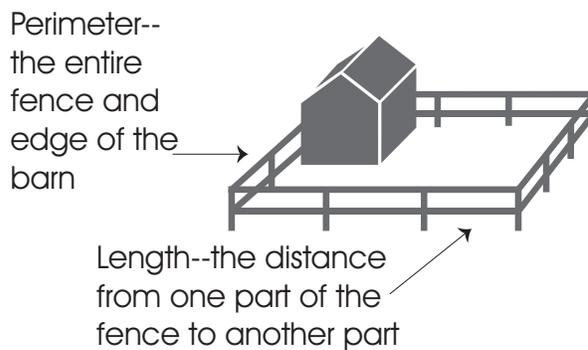
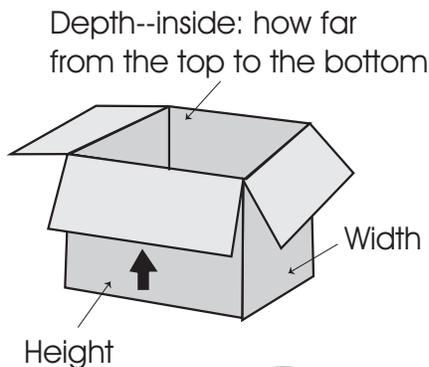
**Area:** Area is the amount of surface covered by a figure. In a backyard, area is the *grass*. (Units of area are written with a small raised 2.)

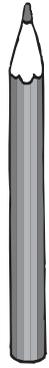
Example: You might write 200 m<sup>2</sup> for the area of your yard. This is read as “200 square metres”.

**Estimate:** The best *educated* guess is an estimate. In this unit, we will be estimating various measurements.

**Height:** The measurement of distance from bottom to top is height.

**Irregular Shape:** Any shape that has at least one side of a different length than the others is irregular. Rectangles are regular because no one side is different.





**Length:**

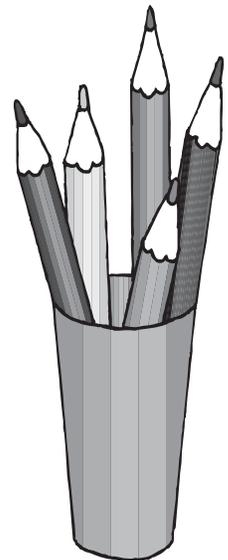
Measured in units such as mm, cm, and km, length is a measurement of distance or the measurement of *how long* an object is.

**Perimeter:**

Perimeter is the outside measurement or distance around an object. Often people use the image of a fence around a yard to remember perimeter.

**Width:**

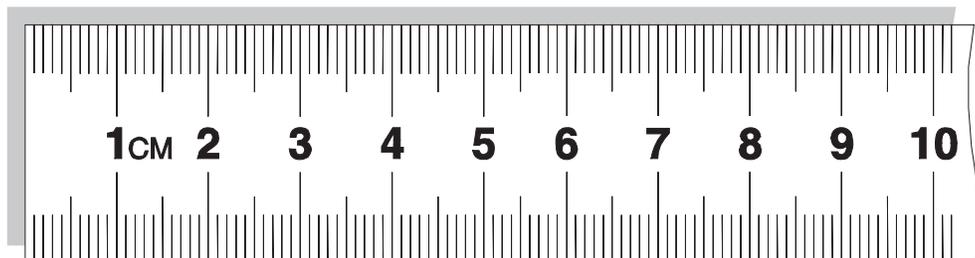
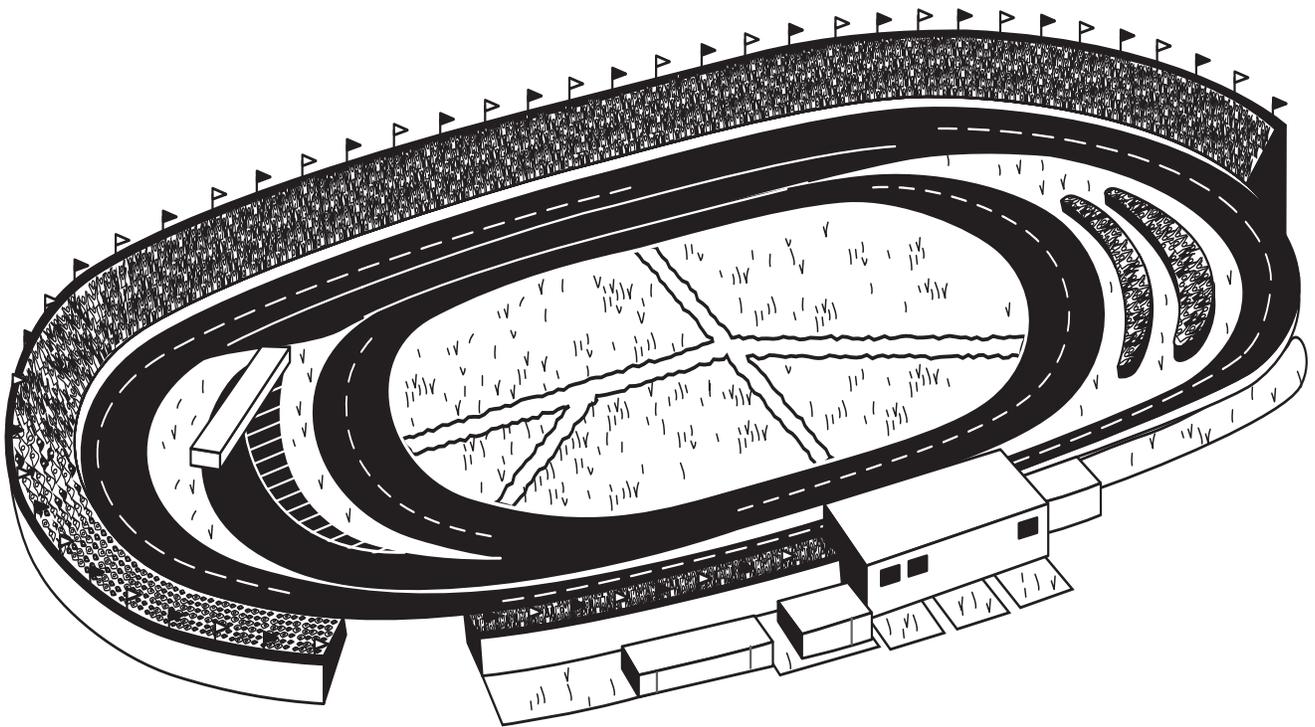
Width is the measurement between opposite sides of an object.



## W2 - Lesson 4: Perimeter and Area Measurements

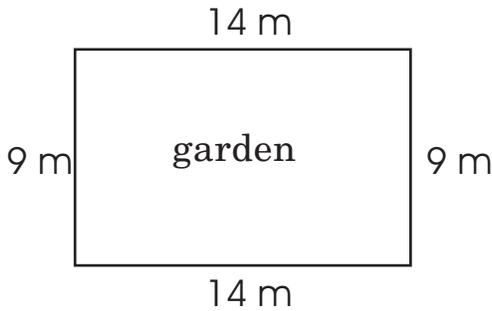
### Concepts:

- Calculating Perimeter
- Calculating Area
- Estimating Area and Taking Measurements
- Creating an Object with a Given Area or Perimeter



## Calculating Perimeter

**Perimeter** is the outside measurement or distance around an object. Often people use the image of a fence around a yard to remember perimeter. If the object is regular and all 4 sides are the same, you can multiply the length of the side by 4 to get the perimeter. If the object is irregular and all 4 sides are different, you must add all 4 sides together.



$$9\text{ m} + 14\text{ m} + 9\text{ m} + 14\text{ m} = 46\text{ m}$$

If you walked around the edge of the garden, you would travel 46 m.

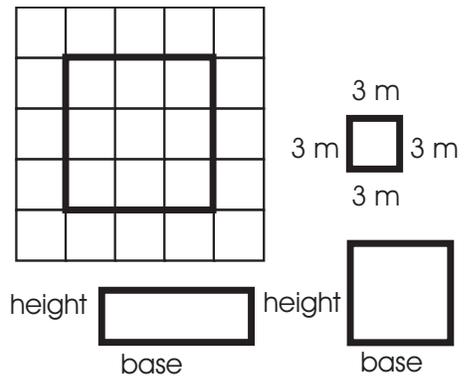
Find the perimeter for each of the following.

<p>a.</p> <p>6 m</p> <p>6 m</p> <p>_____</p>	<p>b.</p> <p>4 cm</p> <p>7 cm</p> <p>_____</p>
<p>c.</p> <p>7 cm</p> <p>3 cm</p> <p>_____</p>	<p>d.</p> <p>10 m</p> <p>10 m</p> <p>_____</p>
<p>e.</p> <p>12 cm</p> <p>6 cm</p> <p>_____</p>	<p>f.</p> <p>7 m</p> <p>14 m</p> <p>_____</p>

## Calculating Area

Area is found in two common ways.

1. Count squares on a grid
2. Use a formula



### The Area Formula for a Rectangle or Square

$$\text{Area} = \text{base} \times \text{height}$$

This formula can be used to find the areas of squares and rectangles.

Try the following questions.

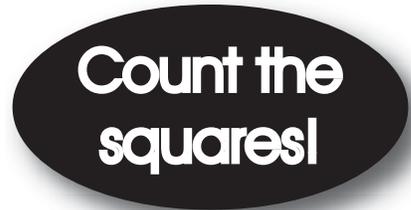
1. Show your work and answer for each.


2. What is the area of a backyard if the lengths of the sides are 5m, 5m, 5m, and 5m? \_\_\_\_\_

3. What is the area of a backyard if the lengths of the sides are 10m, 5m, 10m, and 5m?

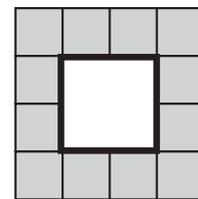
\_\_\_\_\_

### Estimating Area and Taking Measurements

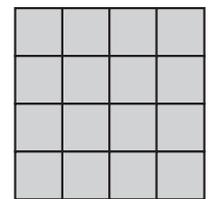


Estimate area and perimeter using grids.

Perimeter and area are easily found on a grid.  
Just count the squares!



Perimeter



Area

Complete the following questions by estimating either the perimeter or the area as required.

1. Estimate the area  
\_\_\_\_\_

2. Estimate the perimeter  
\_\_\_\_\_

3. Estimate the area  
\_\_\_\_\_

5. Estimate the perimeter  
\_\_\_\_\_

5. Estimate the area  
\_\_\_\_\_

7. Estimate the perimeter  
\_\_\_\_\_

7. Estimate the area  
\_\_\_\_\_

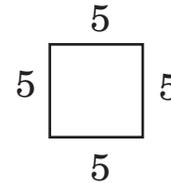
9. Estimate the perimeter  
\_\_\_\_\_

## Creating an Object with a Given Area or Perimeter

If the **perimeter** is 20, how do you draw the shape?

The easiest way is to create a square with the information. Because a square has four equal sides, you just divide the perimeter by 4 to find out how many squares per side.

In this case,  $20 \div 4 = 5$ , or 5 units per side.



If the **area** is 25, how do you draw the shape on the graph?

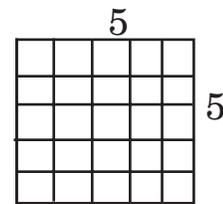
Again, the easiest way is to create a square with the information. Because the formula for area is base times height, your answer will be  $a^2 = 25$ .

or  $a \times a = 25$

or you can use doubles until you get to 25

$2 \times 2 = 4$ ,  $3 \times 3 = 9$ ,  $4 \times 4 = 16$ ,  $5 \times 5 = 25$

Count the squares; there are 25.



To draw a shape with an area of 25, you can draw a square with 5 squares on each side.

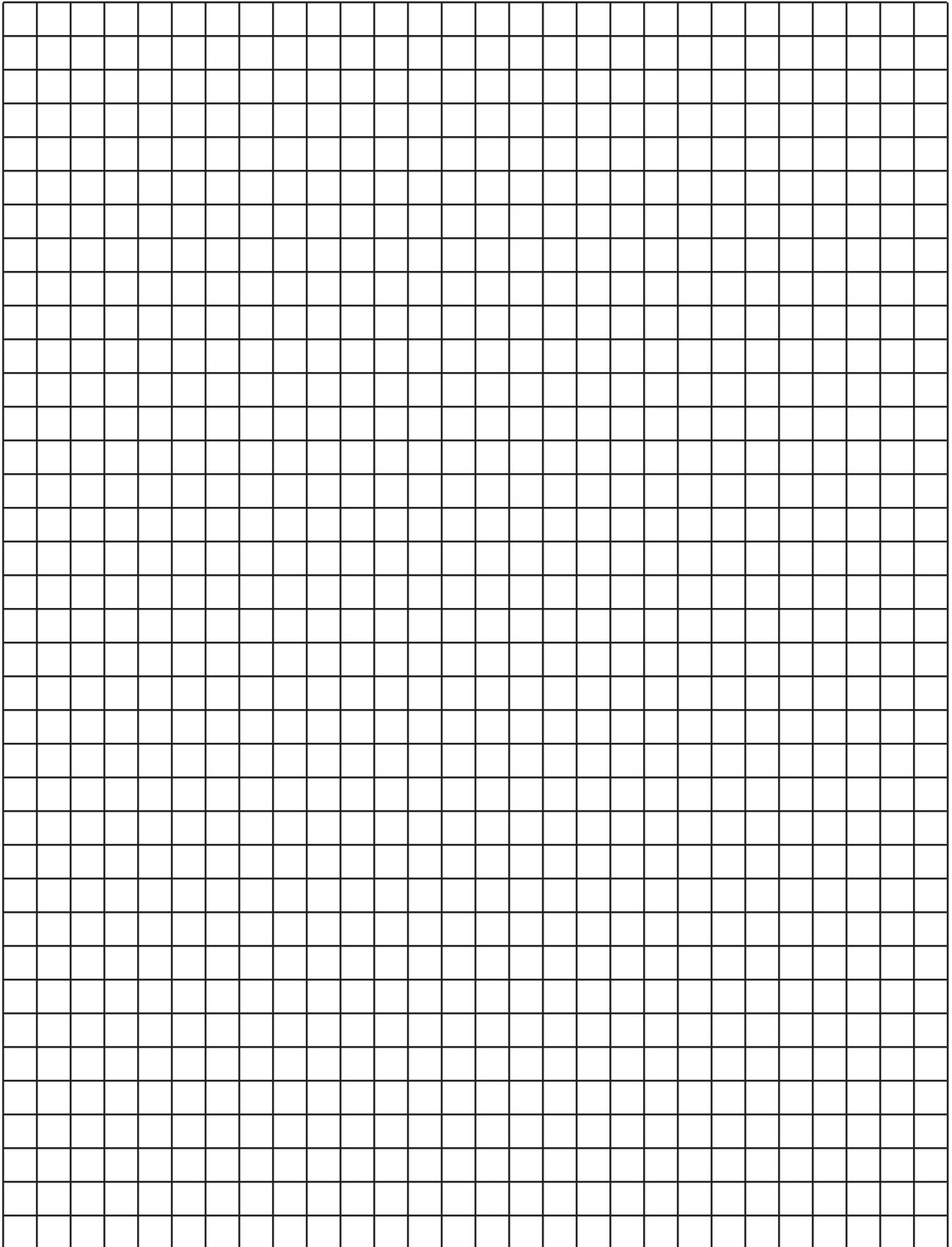
1. Use the graph paper on the following page to create as many different shapes as possible with the following perimeters.

Perimeters: 12 and 16



Label your shape by writing the number inside the shape.

2. Create 3 shapes that each have an area of 36.
3. Create 3 shapes that each have an area of 49.



### 3-Step Problem-Solving Process

1. Write the problem in a number question.
2. Solve the problem. **Show your work.**
3. Write a sentence with the answer.

Greg will be working on his backyard this summer. He needs to build a fence, plant grass, and rototill an area for a garden. Using the following information, help Greg figure out what he needs.

- Greg’s backyard is rectangular in shape.
- The length is 25 m.
- The width is 15 m.
- Greg wants a garden that is 56 m<sup>2</sup> coverage.
  - a. Draw a diagram of Greg’s backyard including the section set aside for the garden.
  - b. How long will Greg’s fence be? \_\_\_\_\_
  - c. How much area will Greg cover in grass? \_\_\_\_\_

