

3rd Grade Math: Square Units (cm² and in²)

What Are Square Units?

Square units are the units used to measure **area**, or how much space is inside a shape. When we measure area, we count how many little squares can fit inside a shape. These little squares are called **square units**.

There are different types of square units depending on what measurement system you're using:

- **Square centimeters (cm²)** for smaller measurements like the area of a notebook.
- **Square inches (in²)** for measuring things like the area of a picture frame.

Key Features of Square Units

1. **Area is Measured in Square Units:**

When you calculate the area of a shape, the answer is in square units. For example, if you're measuring a rectangle in centimeters, the area will be in **square centimeters (cm²)**.

2. **One Square Unit:**

A **square unit** is a square that is 1 unit long on each side. For example, a square centimeter is a square that is 1 centimeter long on all sides.

3. **Common Square Units:**

- **Square centimeters (cm²)**: Used in the metric system for smaller measurements.
- **Square inches (in²)**: Used in the customary system for measuring smaller areas like paper or picture frames.

How to Calculate Area Using Square Units

When you calculate area, you count how many square units fit inside the shape. To find the area of a **rectangle** or **square**, you use the formula:

$$\text{Area} = \text{Length} \times \text{Width}$$

The result will be in **square units** like cm² or in².

Example 1: Area in Square Centimeters (cm^2)

Problem:

You have a rectangle that is 3 centimeters long and 4 centimeters wide. What is the area?

Solution:

Use the formula:

$$\text{Area} = \text{Length} \times \text{Width}$$

$$\text{Area} = 3 \text{ cm} \times 4 \text{ cm} = 12 \text{ square centimeters}(\text{cm}^2)$$

So, the area is 12 cm^2 .

Example 2: Area in Square Inches (in^2)

Problem:

You have a square that is 5 inches on each side. What is the area?

Solution:

Since it's a square, use the formula for the area of a square:

$$\text{Area} = \text{Side} \times \text{Side}$$

$$\text{Area} = 5 \text{ in} \times 5 \text{ in} = 25 \text{ square inches}(\text{in}^2)$$

So, the area is 25 in^2 .

What Do Square Units Look Like?

- **1 cm^2 (Square Centimeter):**
A square where each side is 1 centimeter long. If you measure a book cover in centimeters, the area will be in square centimeters.
- **1 in^2 (Square Inch):**
A square where each side is 1 inch long. If you measure the top of a table in inches, the area will be in square inches.

Practice Problems

1. A rectangle has a length of 6 cm and a width of 2 cm. What is the area in square centimeters (cm^2)?
2. A square has sides that are 4 inches long. What is the area in square inches (in^2)?
3. Find the area of a rectangle that is 7 inches long and 3 inches wide. Write your answer in square inches (in^2).
4. How many square units fit inside a square that has sides of 3 cm?

Conclusion:

- **Square units** are used to measure the **area** of a shape. The most common square units are **square centimeters (cm^2)** and **square inches (in^2)**.
- You calculate area by multiplying the length and width of a shape, and the result is always in square units.
- Understanding square units helps us measure the space inside different objects, like books, rooms, or picture frames, in real life.