NAME   DATE   PERIOD
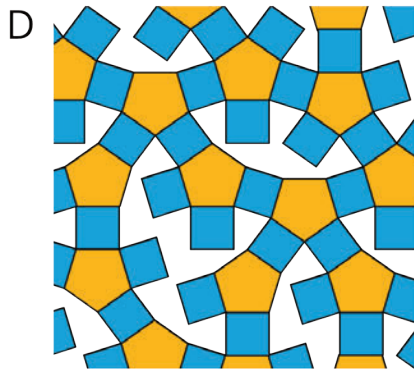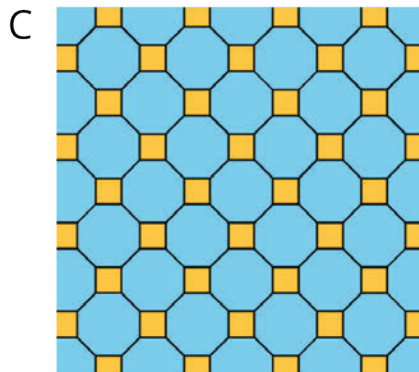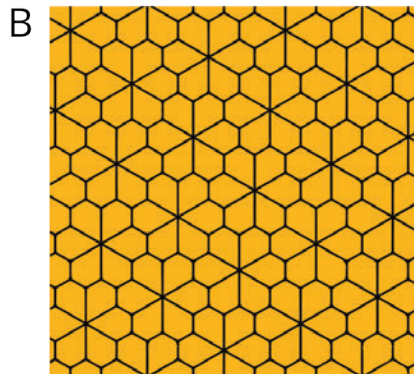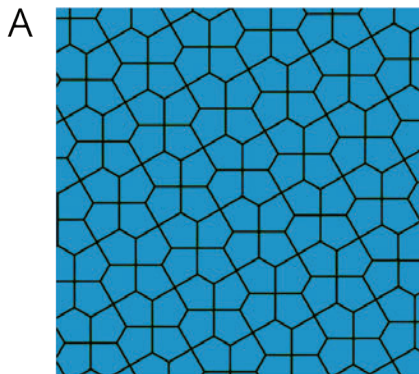
Unit 1, Lesson 1: Tiling the Plane

Let's look at tiling patterns and think about area.

1.1: Which One Doesn't Belong: Tilings

Which pattern doesn't belong?

A

B

C

D

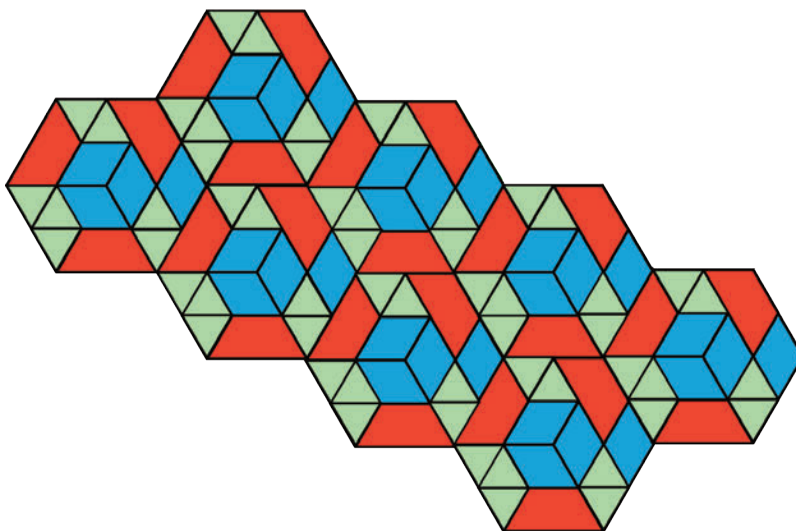## 1.2: More Red, Green, or Blue?

m.openup.org/1/6-1-1-2

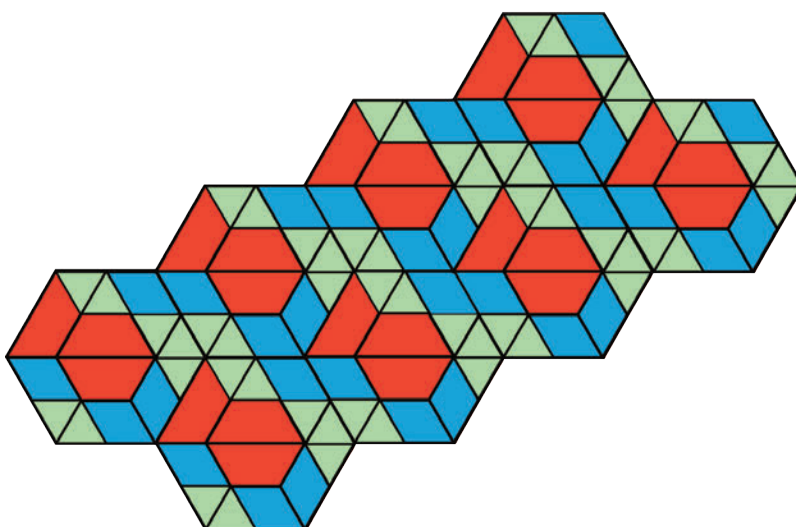Your teacher will assign you to look at Pattern A or Pattern B.

In your pattern, which shape covers more of the plane: blue rhombuses, red trapezoids, or green triangles? Explain how you know.

Pattern A

Pattern B

Are you ready for more?

On graph paper, create a tiling pattern so that:

- The pattern has at least two different shapes.
- The same amount of the plane is covered by each type of shape.

Lesson 1 Summary

In this lesson, we learned about *tiling* the plane, which means covering a two-dimensional region with copies of the same shape or shapes such that there are no gaps or overlaps.

Then, we compared tiling patterns and the shapes in them. In thinking about which patterns and shapes cover more of the plane, we have started to reason about **area**.

We will continue this work, and to learn how to use mathematical tools strategically to help us do mathematics.

Lesson 1 Glossary Terms

- area

- region
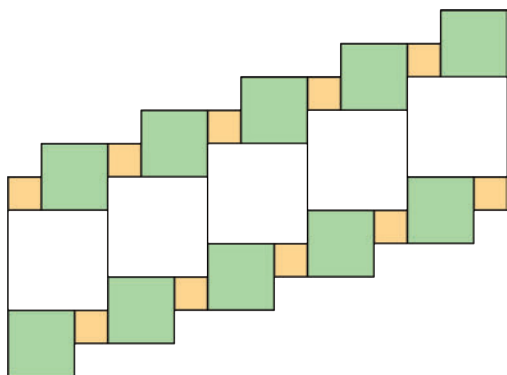
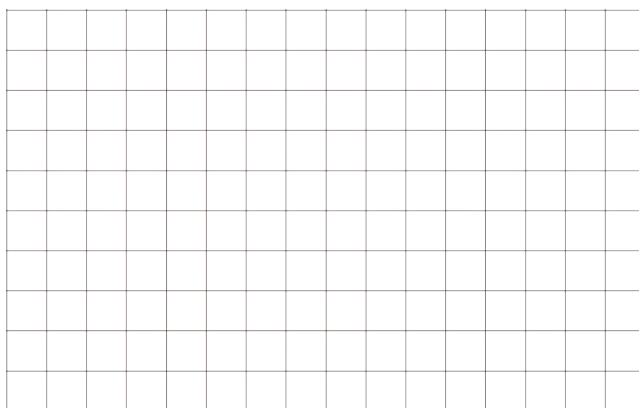NAME   DATE   PERIOD

Unit 1, Lesson 1: Tiling the Plane

1. Which square—large, medium, or small—covers more of the plane? Explain your reasoning.

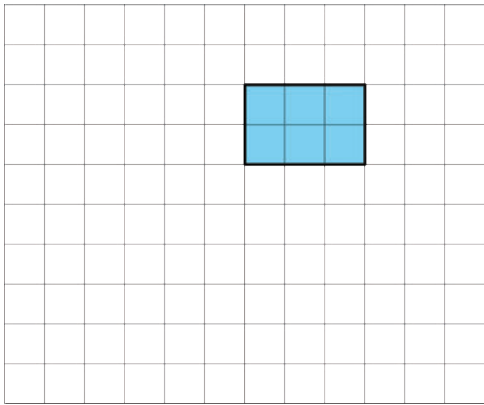2. Draw three different quadrilaterals, each with an area of 12 square units.

3. Use copies of the rectangle to show how a rectangle could:
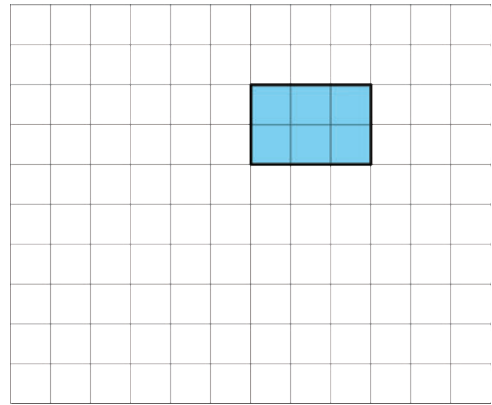
NAME   DATE   PERIOD
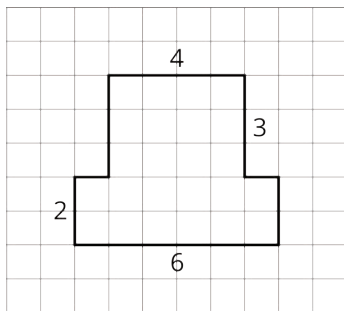
a. tile the plane.   b. *not* tile the plane.

4. The area of this shape is 24 square units. Which of these statements is true about the area? Select **all** that apply.

A. The area can be found by counting the number of squares that touch the edge of the shape.

B. It takes 24 grid squares to cover the shape without gaps and overlaps.

C. The area can be found by multiplying the sides lengths that are 6 units and 4 units.

D. The area can be found by counting the grid squares inside the shape.

E. The area can be found by adding 4×3 and 6×2.

5. Here are two copies of the same figure. Show two different ways for finding the area of the shaded region. All angles are right angles.
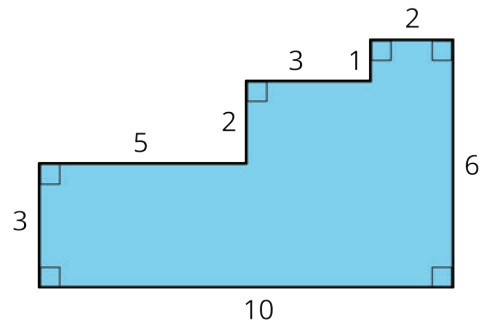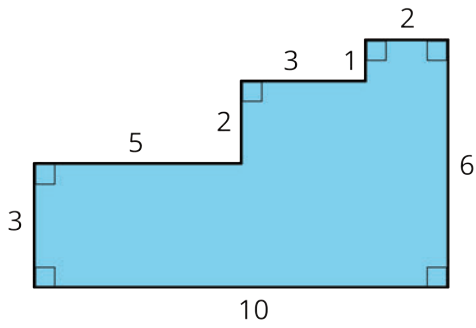
6. Which shape has a larger area: a rectangle that is 7 inches by $\frac{3}{4}$ inch, or a square with side length of $2\frac{1}{2}$ inches? Show your reasoning.