
Unit 3 Introduction

Essential Questions

- What are the special relationships between shapes that are similar or congruent?
- How can we determine if triangles are similar or congruent?
- How do you support your ideas through proof?

Key Skills

- Perform a dilation on a shape
- Identify corresponding sides
- Find missing sides of similar figures
- Determine if two figures are similar
- Use scale factor to find the sides of a similar figure

Key Concepts

- Congruence is a special case of similarity
- Similar figures have sides that are proportional and congruent angles

Vocabulary

Angle-Angle Similarity

Congruent

Corresponding Sides

Dilation

Proportional Equation

Ratio

Relationship

Side-Angle-Side Similarity

Scale Factor

Writing Equivalent Ratios

3.1.1 - Dilations Revisited

— Aim: What characteristics do figures that are dilated share? —

Dilations

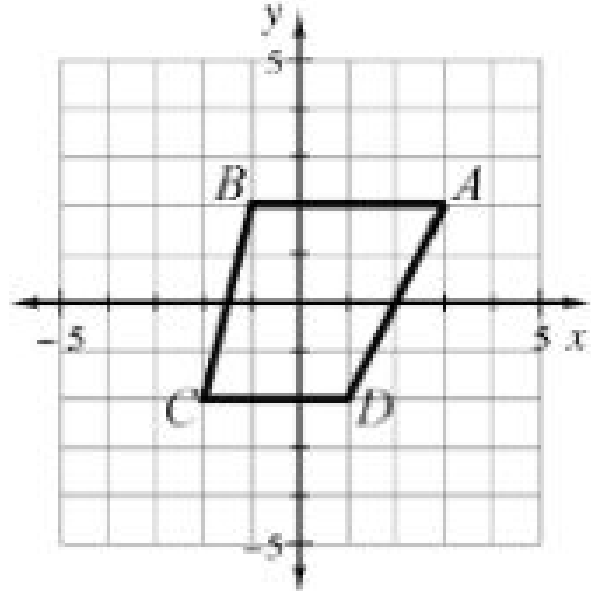
On graph paper, create a coordinate plane and plot the following points:

$$A = (3,2) \quad B = (-1,2) \quad C = (-2,-2) \quad D = (1,-2)$$

Connect your points to create quadrilateral ABCD

Dilate the figure from the origin by a scale factor of 2, 3, 4, or 5 (each person in your group should use a different scale factor)

Cut out your dilated figure and compare it with your group members - what similarities do you notice? Make sure to look at side lengths AND angles.

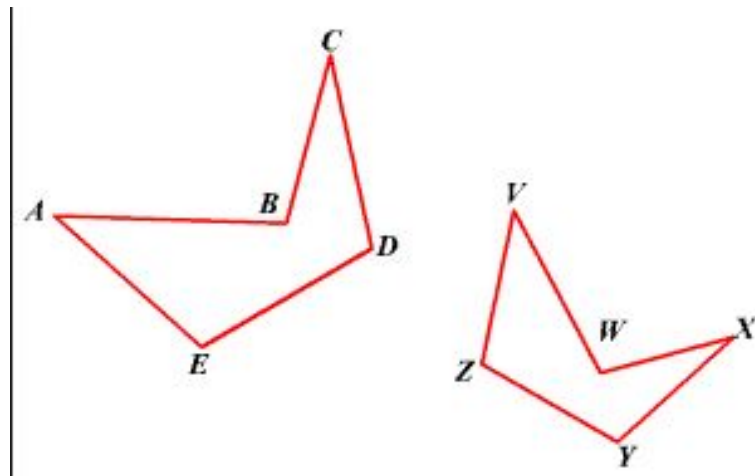


Similar Figures

When we perform **rigid transformations**, we say the figure and its image are **congruent**.

When we perform dilations, we say the figure and its image are **similar**

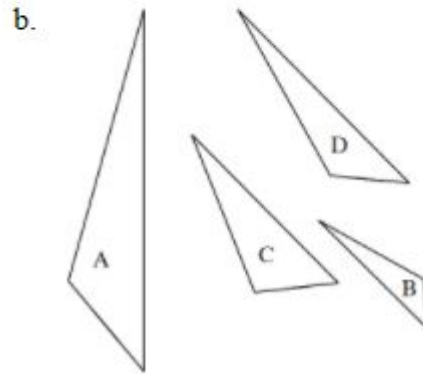
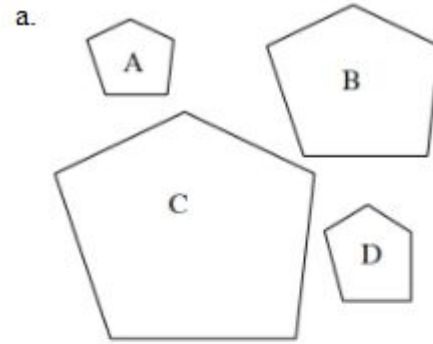
Similar Figures: Two shapes are similar if there is a sequence of rigid motions, followed by a dilation, that carries one onto the other. **The corresponding angles of similar polygons are congruent, and the corresponding sides are proportional. The symbol for similar is \sim .**



Which doesn't belong?

For each set of *similar* figures on the page provided, use tracing paper to determine which doesn't belong. Answer the following questions for each set of shapes:

1. Which figure appears to be the exception?
What makes that shape different from the others?
2. What do the three other shapes have in common?
3. Are there commonalities in the angles?
Are there differences?
4. Are there commonalities in the sides? Are there differences?



Recap and Homework

Dilation: Enlarges or a reduces a shape

Similar figures: Figures that are the same shape but different sizes

- Side lengths are proportional
- Angles are congruent

Homework: Posted on PupilPath and lightningmark.com