



**Inclement Weather
Resources
Mathematics
Grade 8**

**The Department of Curriculum
&
Instruction**

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Hello MSCS Family,

This resource packet was designed to provide students with activities that can be completed at home independently or with the guidance and supervision of family members or other adults. The activities are aligned with the TN Academic Standards for Mathematics and will provide additional practice opportunities for students to develop and demonstrate their knowledge and understanding.

A suggested pacing guide is included; however, students can complete the activities in any order over the course of several days. Below is a table of contents which lists each activity.

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Identify Sequences of Transformations	3	Day 1
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Day 1: Identify Sequences of Transformations	
Grade Level Standard(s)	<p>8.G.A.1 Describe the effect of translations, rotations, reflections, and dilations on two-dimensional figures using coordinates.</p> <p>c. Verify informally that parallel lines are taken to parallel lines.</p>
Caregiver Support Option	<p>The student may use a sibling or a guardian as a partner. For additional support, have the student access the video links below by logging into iReady from their Clever account.</p> <p style="text-align: center;"> Video 1 Video 2 </p>
Materials Needed	Figure Cards, Transformation Cards
Question(s) to Explore	Which figures have a pair or pairs of parallel line segments? Are the line segments parallel <i>after</i> a transformation occurs?



LESSON 3

Identify Sequences of Transformations

What You Need

- Figure Cards
- Transformation Cards

What You Do

- 1 Take turns. Choose two **Figure Cards** that show congruent figures.
- 2 The player to your right places a **Transformation Card** between the two cards to show a sequence of transformations that maps one figure onto the other figure.
- 3 Players check each other's work.
- 4 Continue until all the cards have been used.

* All rotations are around the origin.

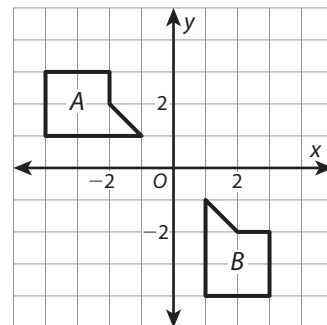
KEEP IN MIND . . .

You may have to reverse the order of two **Figure Cards** to find the **Transformation Card** that goes between them.



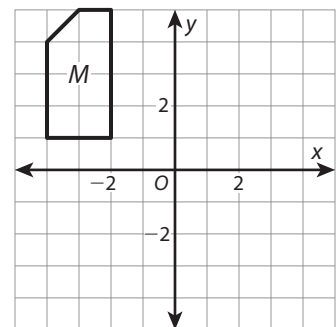
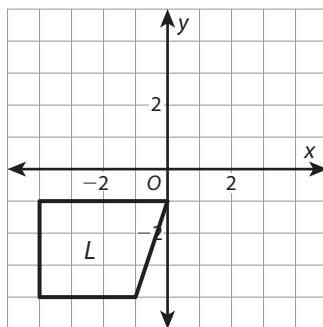
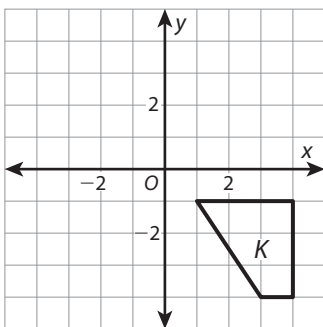
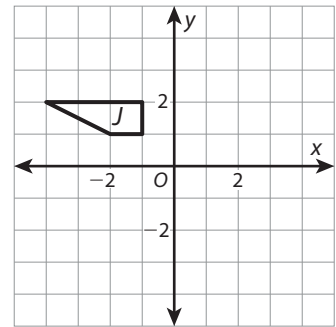
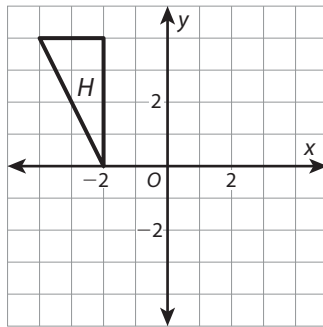
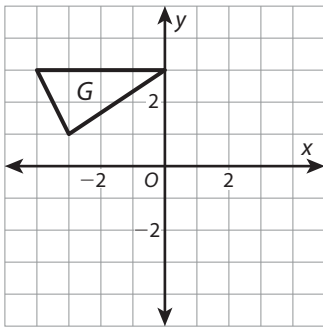
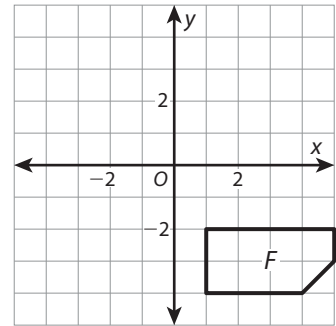
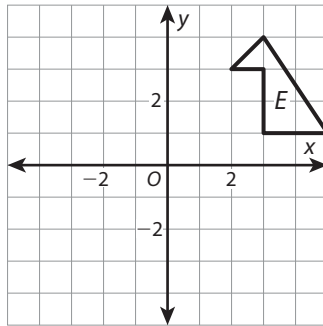
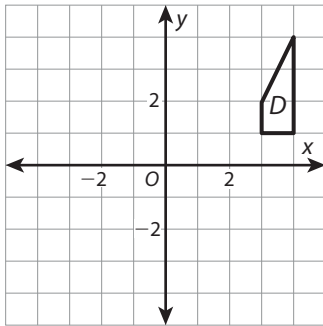
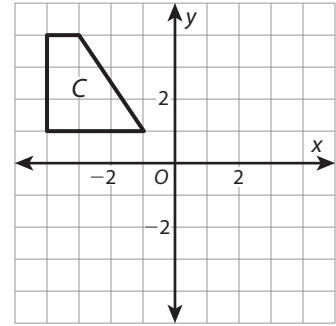
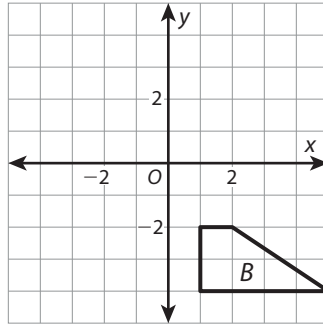
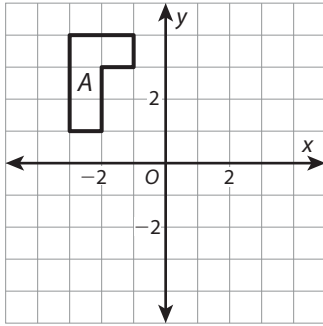
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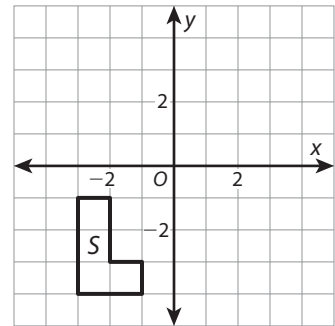
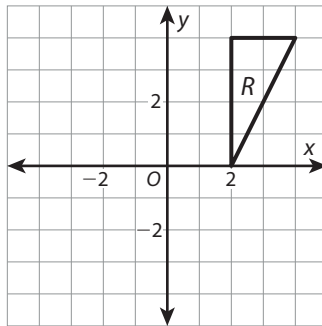
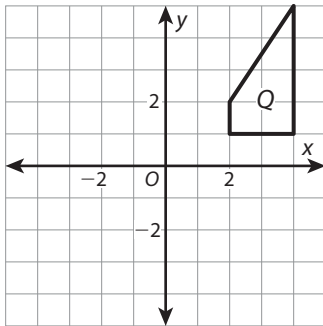
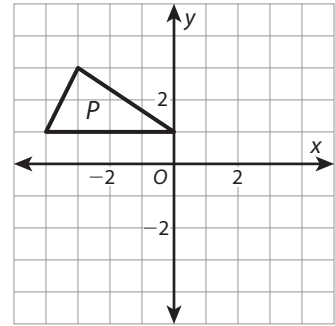
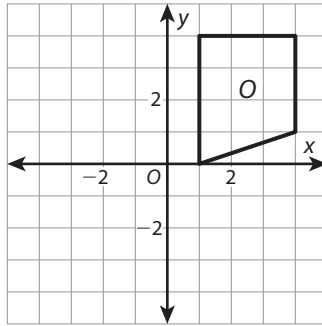
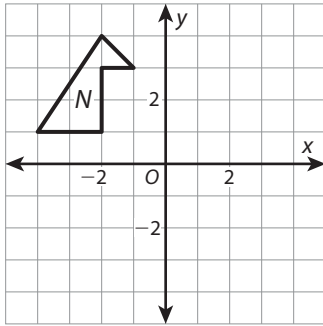
Describe a sequence of transformations that maps *A* onto *B*.



Go Further

Choose three pairs of **Figure Cards** that you matched with **Transformation Cards**. For each pair, describe a different sequence of transformations that maps one figure onto the other.





**Rotate 180° .
Then rotate 90°
clockwise.**

**Reflect across
the y-axis.
Then rotate 90°
clockwise.**

**Reflect across
the y-axis.
Then translate
1 unit right.**

**Reflect across
the y-axis.
Then rotate 180° .**

**Rotate 180° .
Then reflect across
the x-axis.**

**Rotate 90°
clockwise.
Then reflect across
the y-axis.**

**Reflect across
the x-axis.
Then reflect across
the y-axis.**

**Translate
4 units down.
Then reflect across
the x-axis.**

**Rotate 90°
clockwise.
Then translate
2 units right.**

Day 2: Identify Sequences of Transformations with Dilations	
Grade Level Standard(s)	<p>8.G.A.1 Describe the effect of translations, rotations, reflections, and dilations on two-dimensional figures using coordinates.</p> <p>d. Make connections between dilations and scale factors.</p>
Caregiver Support Option	<p>The student may use a sibling or a guardian as a partner. For additional support, have the student access the video link below by logging into iReady from their Clever account.</p> <p style="text-align: center;"> Video 1 Video 2 </p>
Materials Needed	Figure Cards, Transformation Cards
Question(s) to Explore	What is the scale factor that maps a figure onto its image?



Identify Sequences of Transformations with Dilations

What You Need

- Figure Cards
- Transformation Cards

What You Do

- 1 Spread out the **Figure Cards** faceup on one side of the table and the **Transformation Cards** faceup on the other side.
- 2 Take turns. Choose two **Figure Cards** that show similar figures.
- 3 Another group member places a **Transformation Card** between the two cards to show a sequence of transformations that maps one figure onto the other figure. For this activity, all dilations have a center of dilation at the origin, and all rotations have a center of rotation at the origin. Check each other's work. Continue until all the cards have been used.

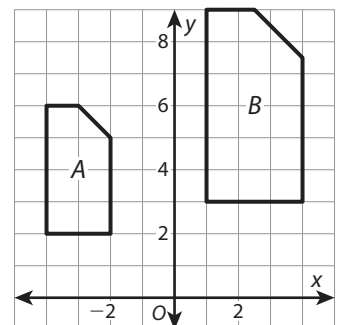
KEEP IN MIND . . .

You may have to reverse the order of two **Figure Cards** to find the **Transformation Card** that goes between them.



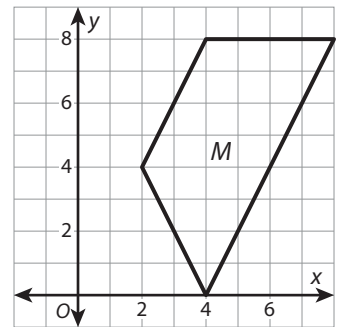
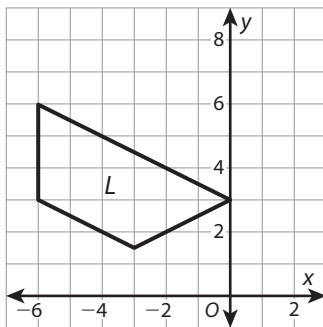
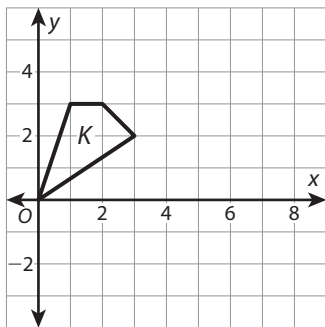
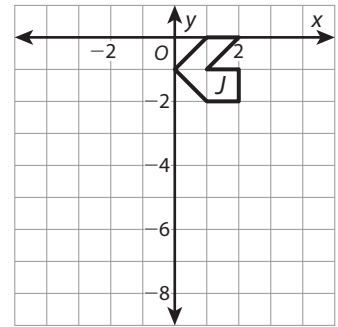
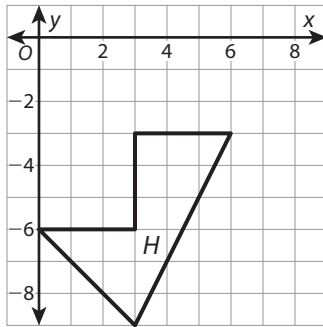
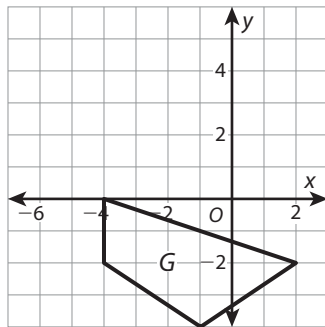
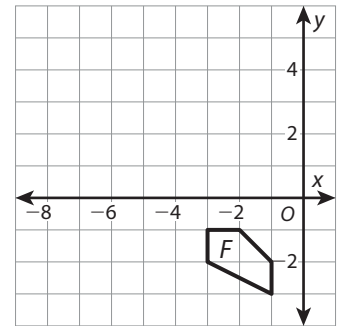
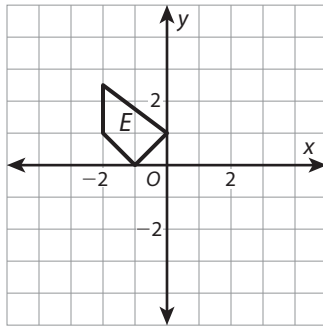
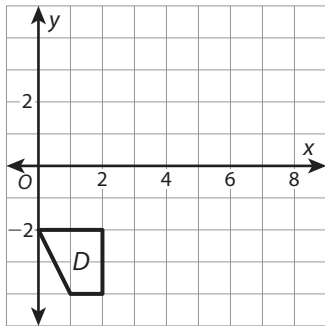
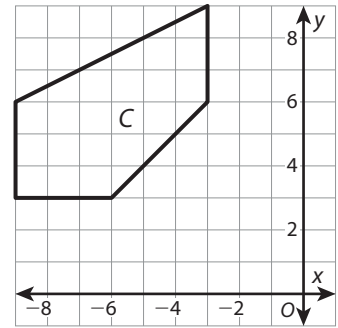
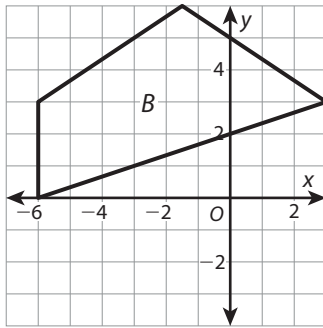
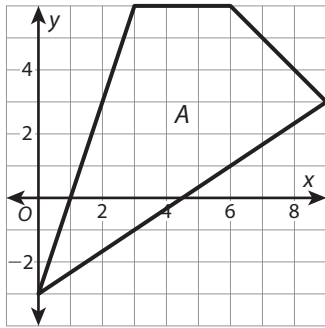
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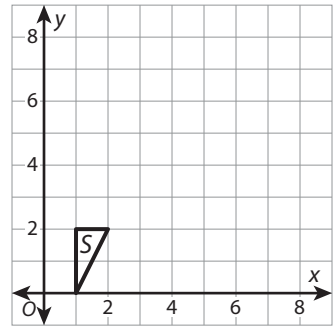
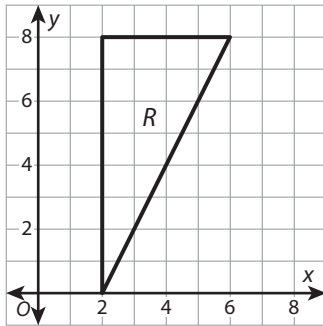
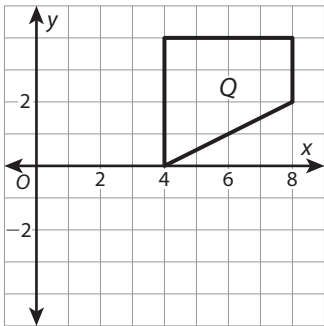
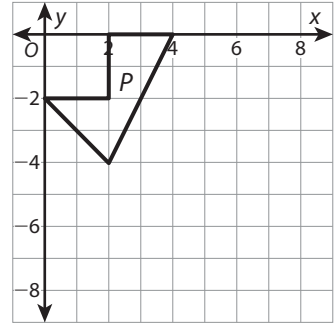
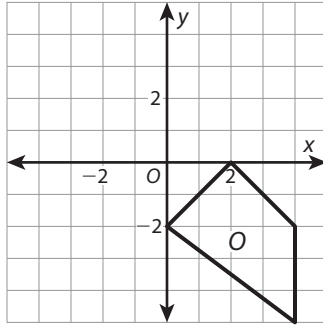
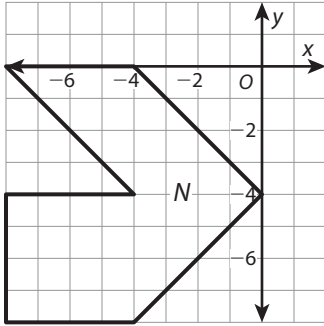
Describe a sequence of transformations that maps figure *A* onto figure *B*.



Go Further

Choose three sets of cards that you put together. For each set, reverse the order of the transformations on the **Transformation Card** and check whether the sequence can still be used to map one figure onto the other.







Dilate by a scale factor of $\frac{1}{3}$.
Then reflect across the x-axis.

Dilate by a scale factor of $\frac{2}{3}$.
Then reflect across the x-axis.

Dilate by a scale factor of 2.
Then rotate 180° .

Dilate by a scale factor of $\frac{1}{2}$.
Then rotate 90° clockwise.

Dilate by a scale factor of 4.
Then translate 2 units left.

Reflect across the y-axis.
Then dilate by a
scale factor of $\frac{1}{4}$.

Rotate 90° clockwise.
Then dilate by a
scale factor of $\frac{4}{3}$.

Translate 1 unit down.
Then dilate by a
scale factor of 3.

Translate 2 units down.
Then dilate by a
scale factor of $\frac{3}{2}$.

Answer Key

Identify Sequences of Transformations

● ● Check Understanding

Possible answer: A reflection across the x -axis followed by a rotation 90° counterclockwise

ACTIVITY ANSWERS

Figure B , rotate 180° then rotate 90° clockwise, Figure Q ;

Figure E , reflect across the y -axis then translate 1 unit right, Figure N ;

Figure H , rotate 180° then reflect across the x -axis, Figure R , or Figure R , rotate 180° then reflect across the x -axis, Figure H ;

Figure J , rotate 90° clockwise then translate 2 units right, Figure D ;

Figure K , reflect across the x -axis then reflect across the y -axis, Figure C ;

Figure M , reflect across the y -axis then rotate 90° clockwise, Figure F , or Figure F , reflect across the y -axis then rotate 90° clockwise, Figure M ;

Figure O , rotate 90° clockwise then reflect across the y -axis, Figure L ;

Figure P , translate 4 units down then reflect across the x -axis, Figure G ;

Figure S , reflect across the y -axis then rotate 180° , Figure A

Identify Sequences of Transformations with Dilations

●● Check Understanding

Possible answer: Dilation by a scale factor of $\frac{3}{2}$ followed by a translation 7 units to the right.

ACTIVITY ANSWERS

Figure *B*, dilate by a scale factor of $\frac{2}{3}$ then reflect across the *x*-axis, figure *G*

Figure *C*, dilate by a scale factor of $\frac{1}{3}$ then reflect across the *x*-axis, figure *F*

Figure *E*, dilate by a scale factor of 2 then rotate 180° , figure *O*

Figure *K*, translate 1 unit down then dilate by a scale factor of 3, figure *A*

Figure *L*, rotate 90° clockwise then dilate by a scale factor of $\frac{4}{3}$, figure *M*

Figure *N*, reflect across the *y*-axis then dilate by a scale factor of $\frac{1}{4}$, figure *J*

Figure *P*, translate 2 units down then dilate by a scale factor of $\frac{3}{2}$, figure *H*

Figure *Q*, dilate by a scale factor of $\frac{1}{2}$ then rotate 90° clockwise, figure *D*

Figure *S*, dilate by a scale factor of 4 then translate 2 units left, figure *R*