PRACTICE TASK: SCORE IT!

Adapted from NC Math and from http://nrich.maths.org/191

STANDARDS FOR MATHEMATICAL CONTENT

MCC3.G.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

STANDARDS FOR MATHEMATICAL PRACTICES

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

BACKGROUND KNOWLEDGE

Students often struggle with finding shapes if the shape looks different than what is typical seen. In this activity, students are encouraged to find the triangles, quadrilaterals, pentagons, and hexagons seen in two different figures. This will help to continue to build student's spatial sense and geometric reasoning. It takes many experiences with shapes to be able to further develop these skills with students.

ESSENTIAL QUESTIONS

- How might finding shapes within other shapes help me in life?
- Can you provide an example of a non-regular pentagon or hexagon?
- Do quadrilaterals have to look like rectangles? How do you know?

MATERIALS

- Printed copies of the student sheet OR use technology to display student sheet
- Math Journal or paper to keep track of number of shapes and total score

GROUPING

Individual or Partner

TASK DESRIPTION, DEVELOPMENT, AND DISCUSSION

This is a practice task that could be included in a center or small group activity where all students are not working on it at the same time. In Figure A, students will review the properties of triangles, quadrilaterals, pentagons, and hexagons as they find the shape within the figure. In Figure B, students will locate all of the rectangles and squares within the figure. Some students might be able to solve this by simply tracing over the shape with their pencils. Others might need to draw the shapes on paper. For the struggling student, you may want to get tracing paper or lightweight paper to have students trace over the lines to find all of the shapes.

FORMATIVE ASSESSMENT QUESTIONS

- How could you make sure you find all of the shapes within other shapes?
- How do you think this type of task helps you for the future?
- Do you struggle with finding shapes that are irregular?

DIFFERENTIATION

Extension

- Allow students to create another type of figure like either A or B. Once they know how many shapes are in their large shape, allow other students to solve for the answer. You may also want to visit Figure 8.6 on page 216 of the Van de Walle resource to have students make different shapes with the mosaic puzzle that is in the black line masters. There are several different rectangle and parallelograms that could be created.

Intervention

- Suggestions: Tracing paper or lightweight paper to trace the lines; colored pencils and have student change colors for each type of shape; allow student to have their own copier paper that has either figure multiple times (to cut out or trace over)

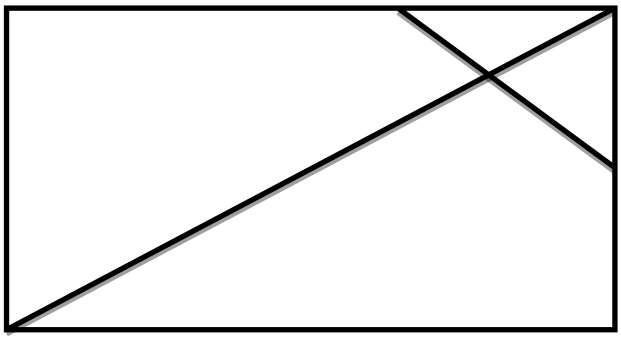
Name _____ **Date** _____

Score It!

Direction: Use Figure A and find all of the triangles, quadrilaterals, pentagons and hexagons. Once you believe you have found all of the shapes, give the appropriate amount of points to each shape found. Find the highest possible score. Once you have it, compare your score to the others in your group. Is it different? Why?

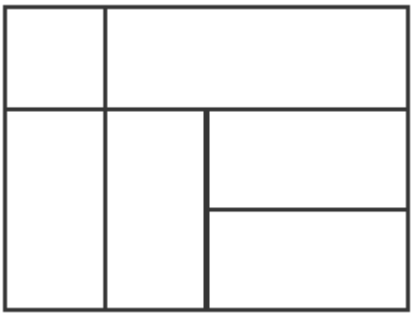
Score This Figure:
2 points for Triangles
3 points for Quadrilaterals
4 points for Pentagons
5 points for hexagons

Figure A

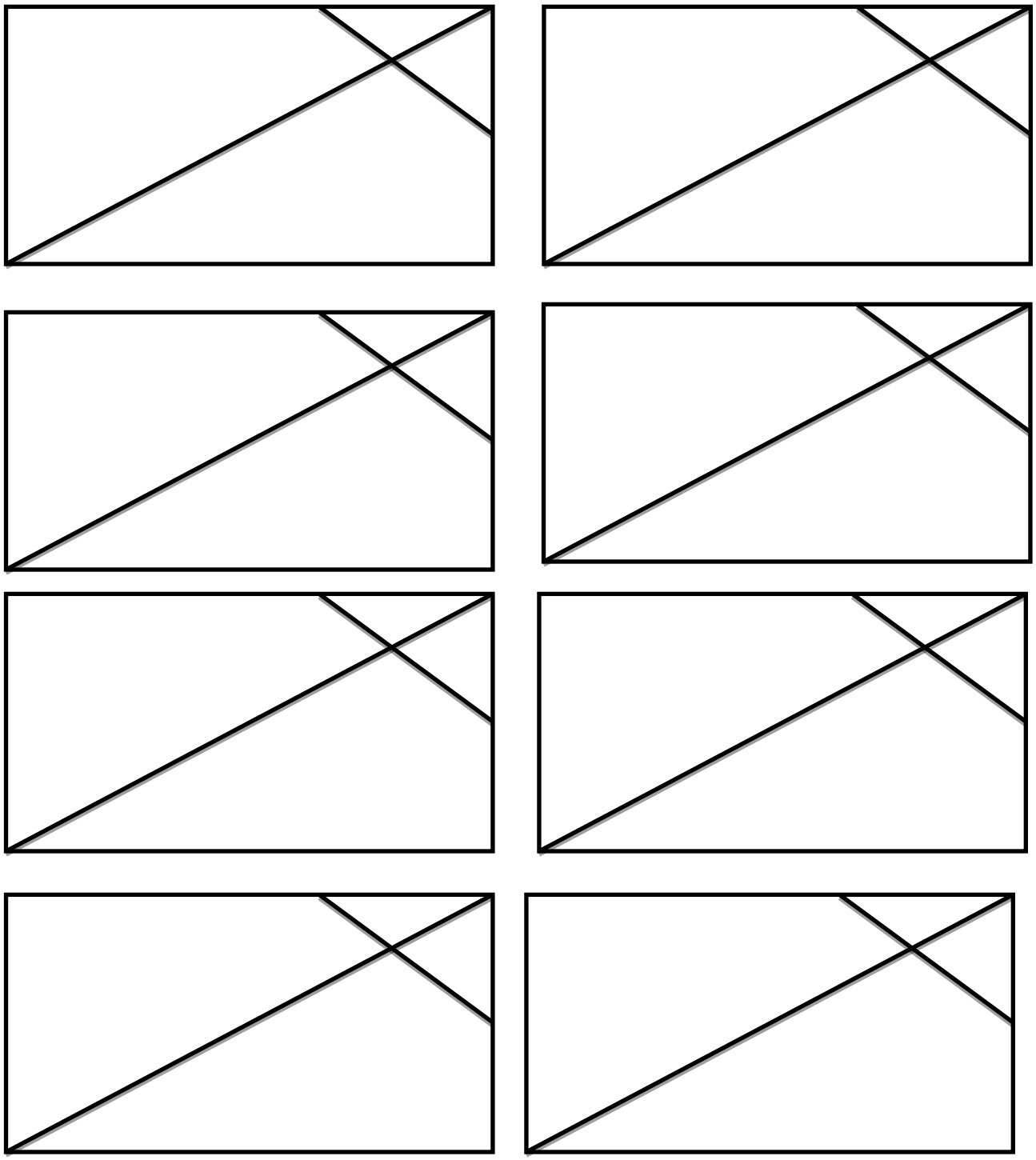


Directions: Use Figure B and find all of the rectangles. Remember what you have learned about rectangles and squares. Do you see any shapes that are similar to each other?

Figure B



Copier Sheet: Print to give each student their own copy of the design.



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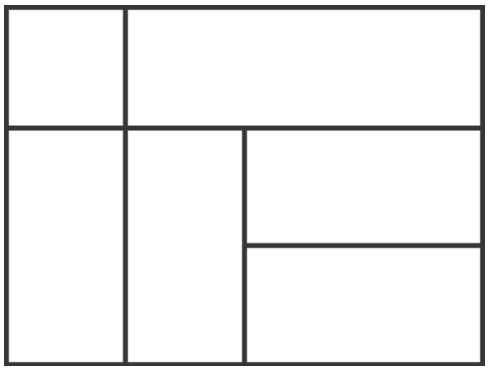
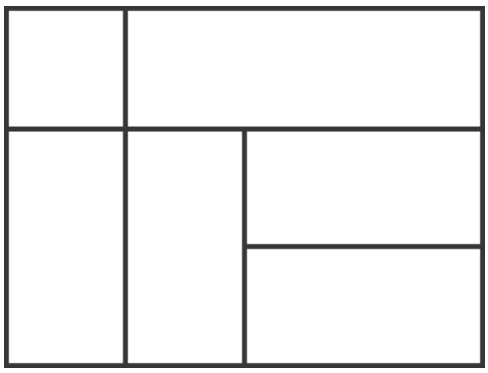
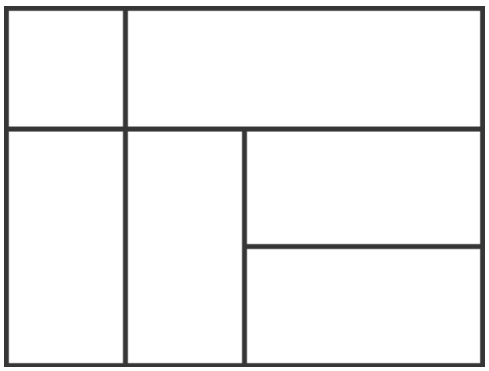
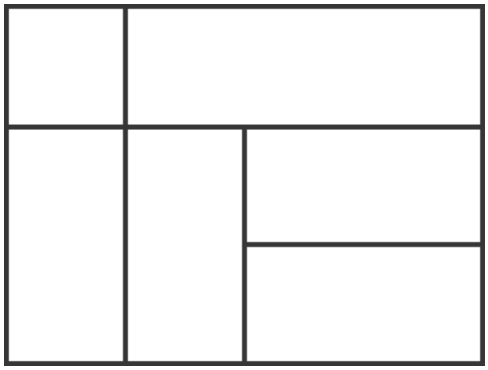
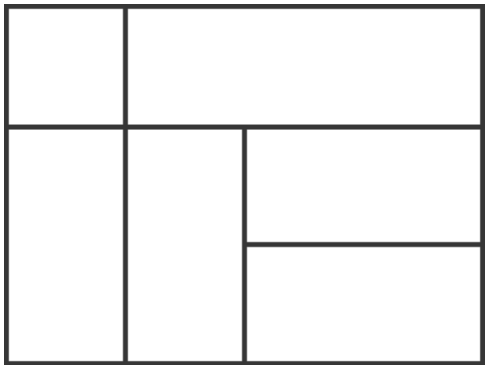
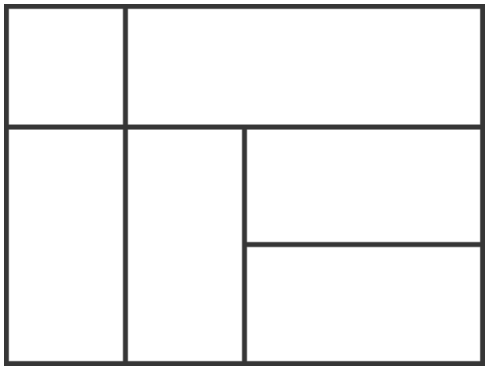
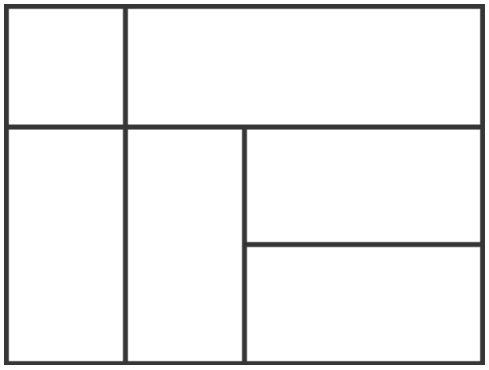
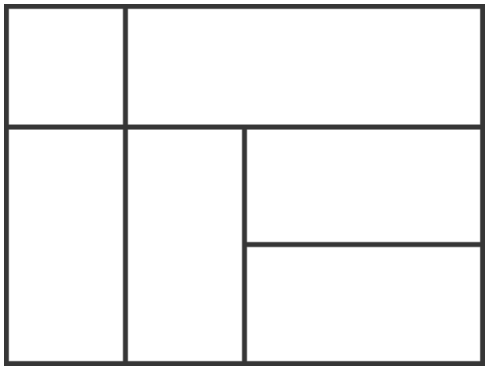
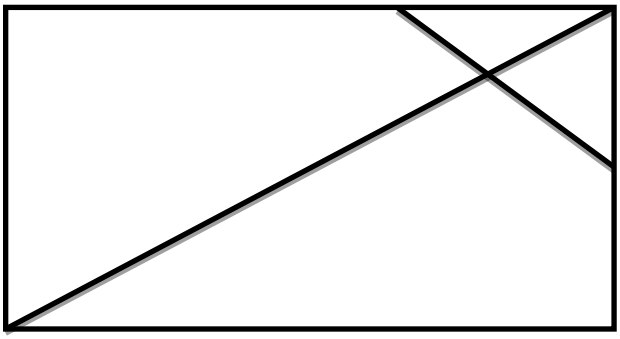









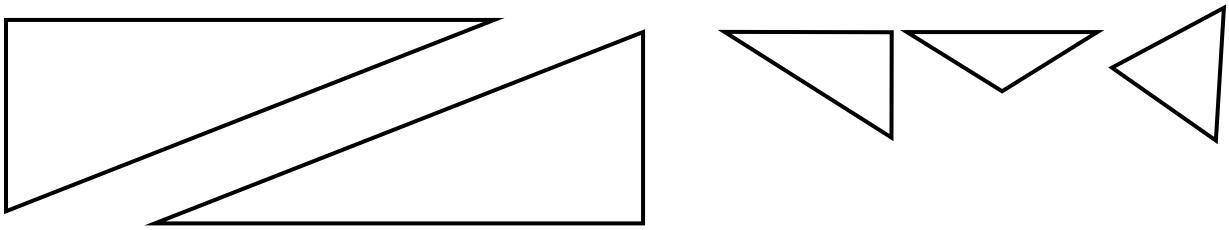
Teacher Answer Key for Figure A:

Figure A:

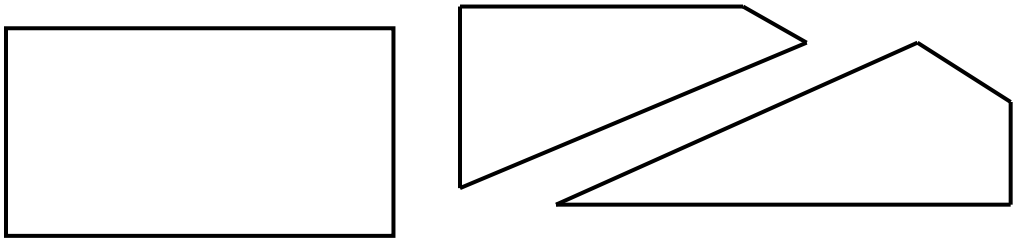


There are 5 triangles, 3 quadrilaterals, 3 pentagons, 2 hexagons for a total of 41 points.

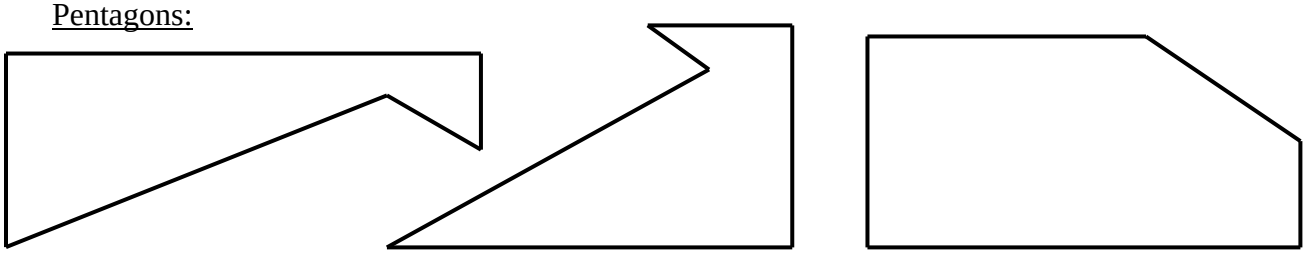
Triangles:



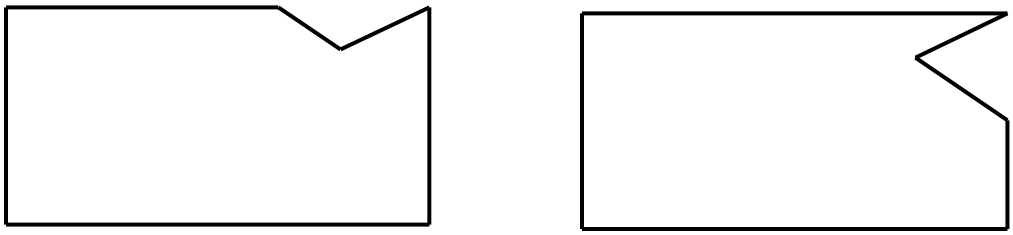
Quadrilaterals:



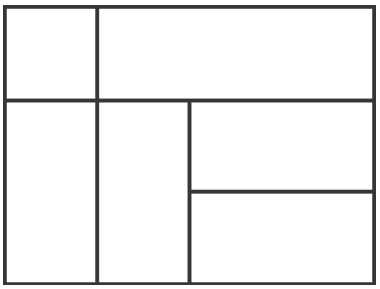
Pentagons:



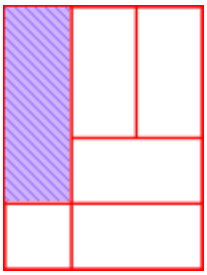
Hexagons:



Teacher Answer Key for Figure B:



14 solutions



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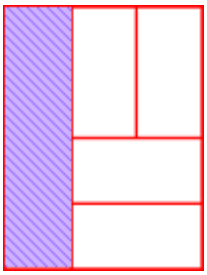

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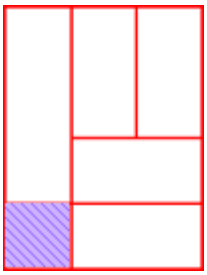

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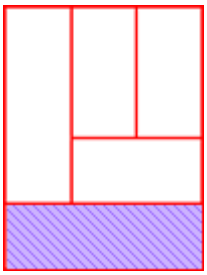

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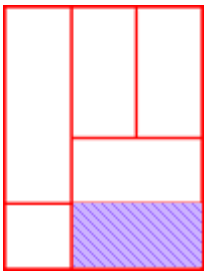

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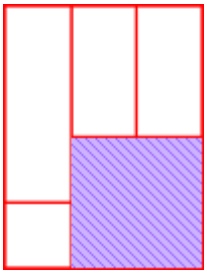

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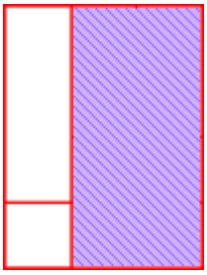

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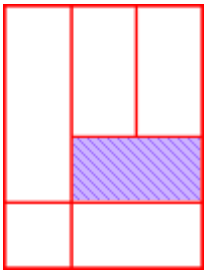

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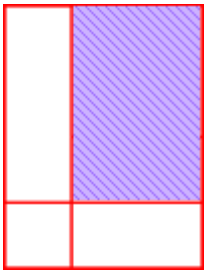

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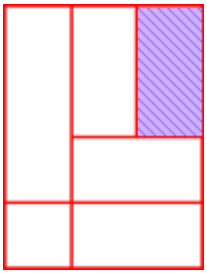

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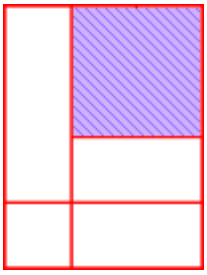

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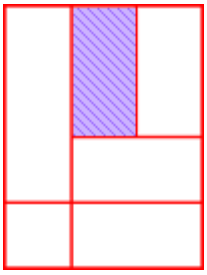

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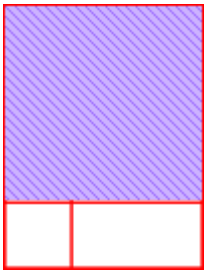

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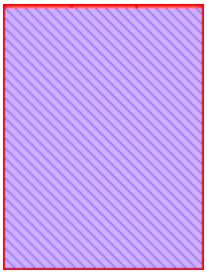

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