

LETTER HOME

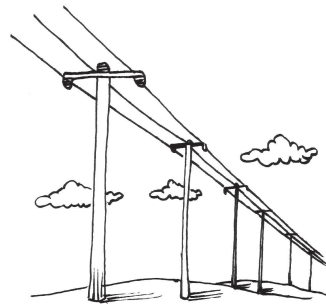
Angles, Lines, and Shapes

Dear Family Member:

In this unit, students explore several areas of geometry: angles and angle measure, symmetry, 2-dimensional shapes and figures, flips, turns, and slides of 2-dimensional shapes.

Your child will learn to measure angles and classify them as acute, right, or obtuse. He or she will measure the angles formed when two lines intersect and also the angles in the corners of 2-dimensional shapes. Your child will study other aspects of 2-dimensional shapes: Is the shape symmetrical? Along which line? When the shape is flipped or turned, is it still the same shape? When two shapes are compared, are they congruent or similar or neither?

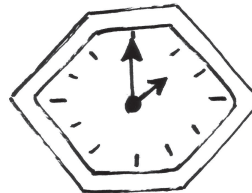
There are a lot of new words in this unit. Help your child learn and remember them by asking what new words he or she has learned in math and to describe or draw what the word means. Make a game of looking for examples of the new words in your home, such as the **symmetry** in a face, a **right angle** on a sheet of paper, a **hexagon** on a clock face. Examples can also be found outside your home: most trees stand **perpendicular** to the ground, telephone poles are **parallel** to each other, a branch forms an **acute angle** with the trunk of a tree. Help your child see that geometry is all around us.



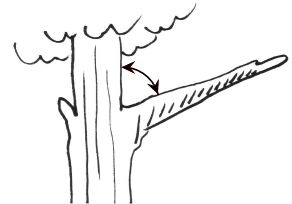
parallel telephone poles



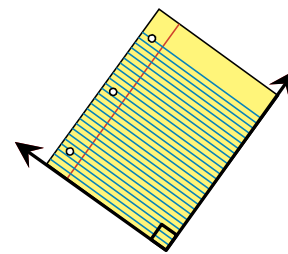
symmetry in a face



hexagonal clock



angle on a tree



right angle on a sheet of paper

Geometry around us

Math Facts and Mental Math

This unit continues the systematic review and assessment of the division facts.

Division Facts. Students review the division facts for square numbers to maintain and increase fluency and to learn to apply multiplication and division strategies to larger numbers.

You can help your child review these facts using the flash cards that are sent home or by making a set of flash cards from index cards or scrap paper. Study facts in small groups each night. As your child goes through the flash cards, put the cards in three stacks: Facts I Know Quickly, Facts I Can Figure Out, and Facts I Need to Learn.

For Facts I Need to Learn, work on strategies for figuring them out. Good strategies include:

Start with the multiplication fact. If your child does not know the multiplication fact related to the division fact, start by developing strategies to solve that multiplication fact.

Reasoning from known facts. To solve $36 \div 6$: I know $6 \times 6 = 36$. So $36 \div 6 = 6$

For Facts I Can Figure Out, use the flash cards to practice the facts for fluency.

For Facts I Know Quickly, help your child use mental math strategies to multiply 10s and 100s:
 $810 \div 9 = 90$; $25,000 \div 500 = 50$; $4900 \div 70 = 70$.

Thank you.

Sincerely,

Unit 9: Home Practice

Part 1 Triangle Flash Cards: Square Numbers

Study for the quiz on the division facts for the square numbers. Take home your Triangle Flash Cards and your list of facts you need to study.

Here's how to use the flash cards. Ask a family member to choose one flash card at a time. Your partner should cover one of the smaller numbers. (One of the smaller numbers is in a circle. The other number is in a square.) Solve a division fact using the two uncovered numbers.

Your teacher will tell you when the quiz on the square numbers will be. Remember to concentrate on one small group of facts each night. Also, remember to concentrate on those facts you cannot answer correctly and quickly.

Part 2 Mental Problem Solving

Use mental math to solve Questions 1–3. Be ready to show or tell how you solved them.

1. **A.** Paper towels cost 80¢. How much will 6 rolls cost? _____
B. One ice cream bar costs \$3.50. How much will 4 bars cost? _____
C. Bagels cost 69¢ each. About how much will 5 bagels cost? _____
2. How much is:
A. 11 nickels? _____
B. 11 nickels and 5 dimes? _____
3. Do not find an exact answer for Questions 3A–3C.
A. The product of 2×37 will have how many digits? _____
B. The product of 4×492 will have how many digits? _____
C. The product of 7×88 will have how many digits? _____
D. Explain how you found your answer for Question 3C.

Part 3 Addition, Subtraction, and Multiplication

1. Find the missing numbers needed to make these addition and subtraction problems correct. Use pencil and paper or mental math.

A.
$$\begin{array}{r} 189 \\ + \\ \hline 612 \end{array}$$

B.
$$\begin{array}{r} 322 \\ - \\ \hline 284 \end{array}$$

C.
$$\begin{array}{r} 5078 \\ + \\ \hline 8079 \end{array}$$

D.
$$\begin{array}{r} 7339 \\ - \\ \hline 6079 \end{array}$$

E.
$$\begin{array}{r} 5405 \\ + \\ \hline 13,053 \end{array}$$

F.
$$\begin{array}{r} 3000 \\ - \\ \hline 1456 \end{array}$$

2. Estimate the following products using convenient numbers. Write a number sentence to show your thinking.

A. $290 \times 18 =$

B. $505 \times 59 =$

C. $9956 \times 9 =$

3. Find the products using paper and pencil or mental math. Be sure to estimate to make sure your answers are reasonable.

A. $63 \times 4 =$

B. $37 \times 8 =$

C. $28 \times 9 =$

D. $842 \times 5 =$

E. $667 \times 3 =$

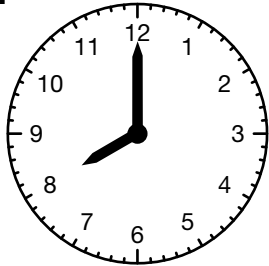
F. $725 \times 6 =$

4. Choose one problem from Question 3 and show or tell how you can solve it using mental math.

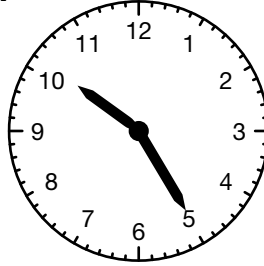
Part 4 Time

1. What time is shown on each clock below?

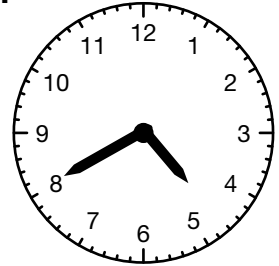
A.



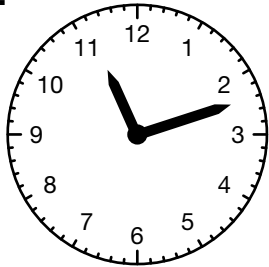
B.



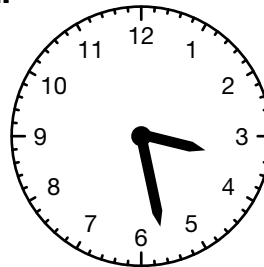
C.



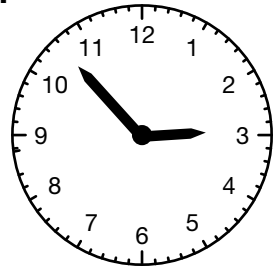
D.



E.



F.



2. **A.** Jackie began cleaning her room at 6:15 P.M. She finished two hours later. When did she finish?

- B.** John started watching cartoons when he woke up 1 hour and 15 minutes ago. It is now 10:00 A.M. What time did John wake up?

- C.** Jacob's mother has to pick him up from his aunt's house at 9:30 P.M. It takes 50 minutes to get there. What time should she leave her home?

- D.** Irma and her sister are making dinner for the family. They plan to eat at 6:30 P.M. The dinner takes 2 hours and 35 minutes to prepare. What time should they begin cooking?

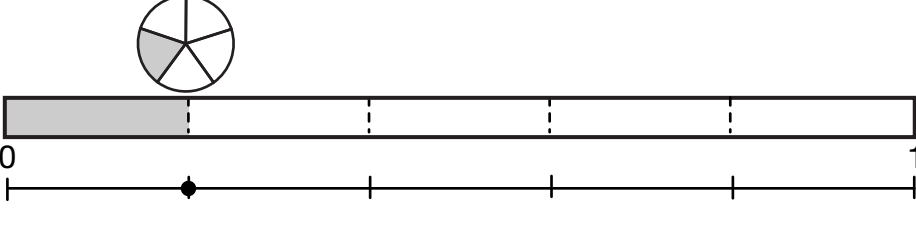
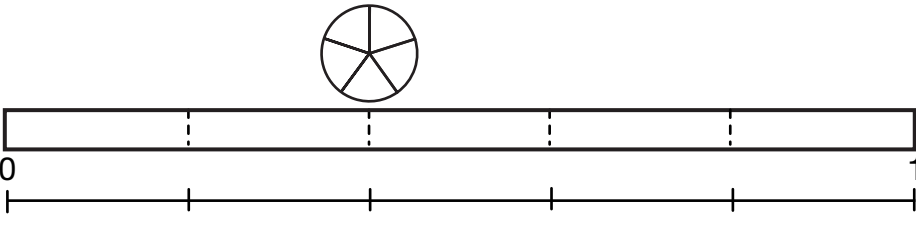
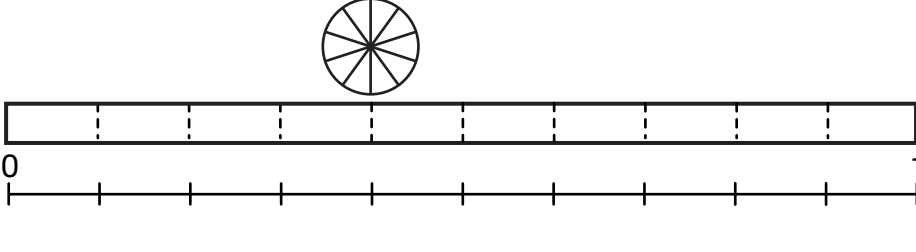
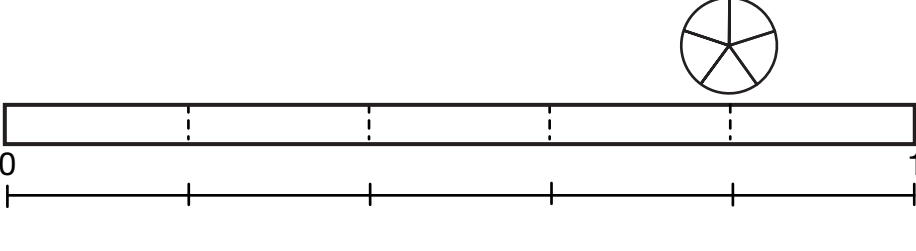
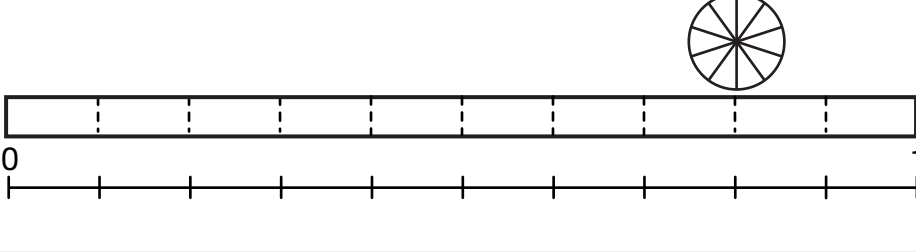
- E.** How many minutes will it take Irma and her sister to prepare dinner?

- F.** How many hours is 600 minutes?

- G.** Which clock in Question 1 shows an acute angle?

Part 5 Showing Fractions

Show the numbers in the first column in three ways. Use circles, fraction strips, and number lines. Draw the circle in the space above the fraction strip. The whole circle and rectangle represent unit wholes. For number lines, the segment from 0 to 1 is the unit whole.

Number	Representations
<p>Example</p> <p>$\frac{1}{5}$</p>	
<p>A.</p> <p>$\frac{2}{5}$</p>	
<p>B.</p> <p>$\frac{4}{10}$</p>	
<p>C.</p> <p>$\frac{4}{5}$</p>	
<p>D.</p> <p>$\frac{8}{10}$</p>	
<p>E. What do you notice about your answers to A and B? What do you notice about your answers to C and D?</p>	

Part 6 Making Rectangles With Tiles

- Fill in the table to show all the different rectangles that can be made with 64 tiles. You can use a calculator or multiplication facts to help you divide.
- List all the factors of 64.

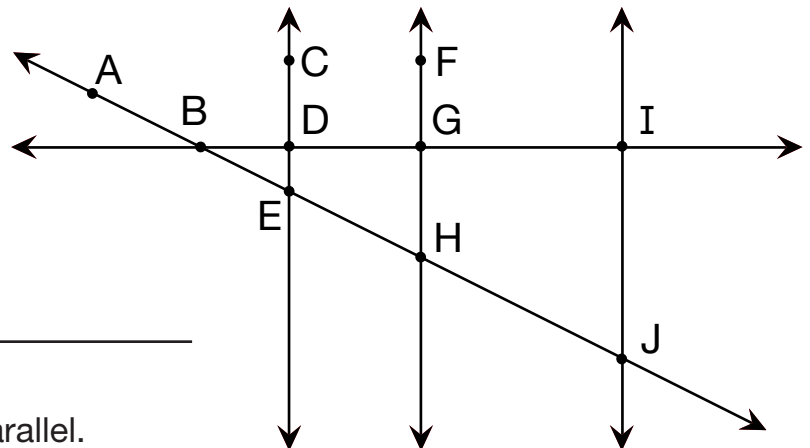
Number of Rows	Number in Each Row	Division Sentence
1	64	$64 \div 1 = 64$
2		$64 \div 2 =$

Part 7 What's My Line?

- Name a triangle.

- Name 2 quadrilaterals.

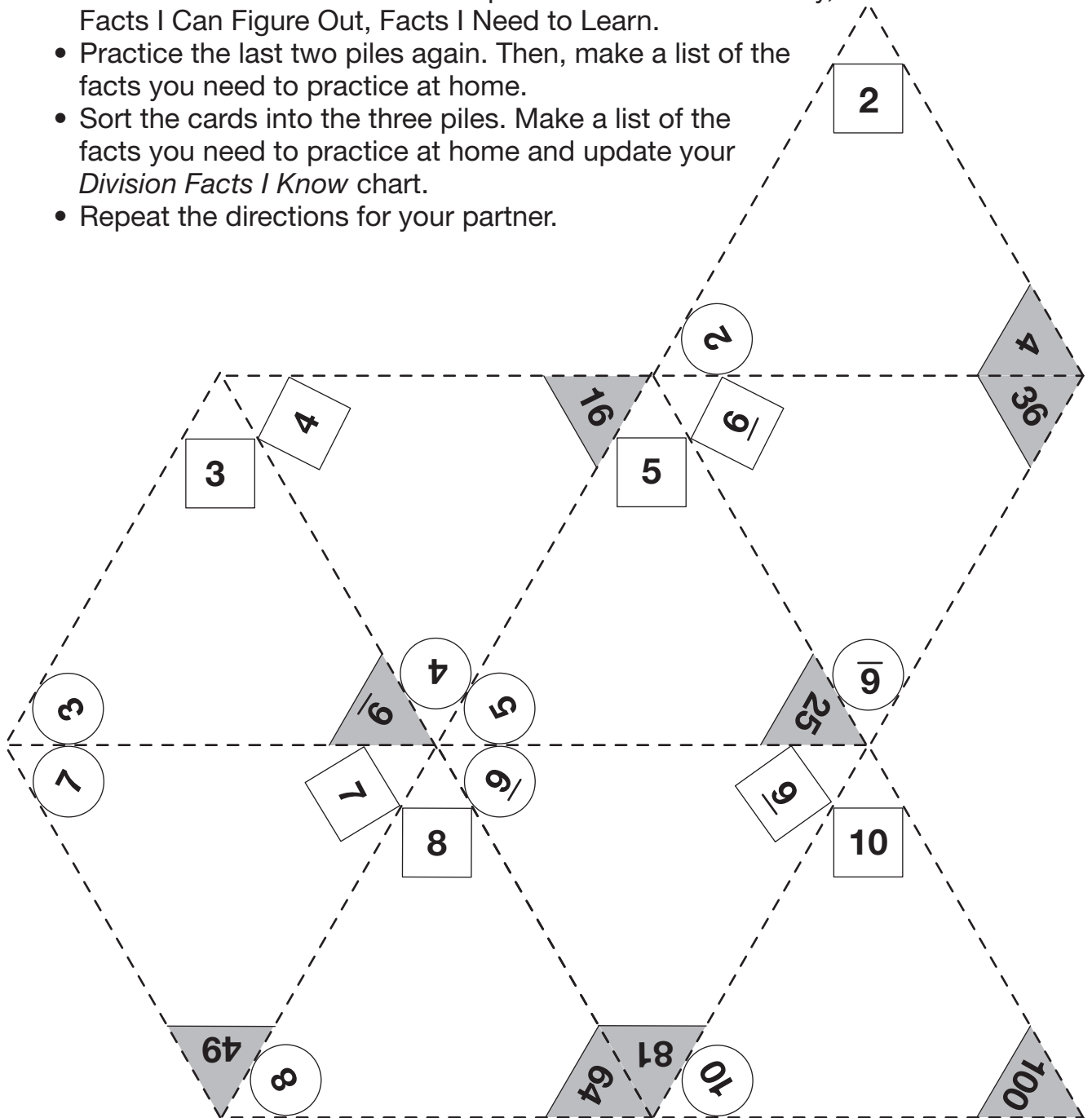
- Name 2 lines that are parallel.



- Name 2 lines that are perpendicular. _____
- Name the point where your two perpendicular lines intersect. _____
- Name one ray. _____
- Name one line segment. _____

Triangle Flash Cards: Square Numbers

- Work with a partner. Each partner cuts out the flash cards.
- To quiz you on a division fact, your partner covers the number in the square. Solve a division fact with the two uncovered numbers.
- Divide the used cards into three piles: Facts I Know Quickly, Facts I Can Figure Out, Facts I Need to Learn.
- Practice the last two piles again. Then, make a list of the facts you need to practice at home.
- Sort the cards into the three piles. Make a list of the facts you need to practice at home and update your *Division Facts I Know* chart.
- Repeat the directions for your partner.

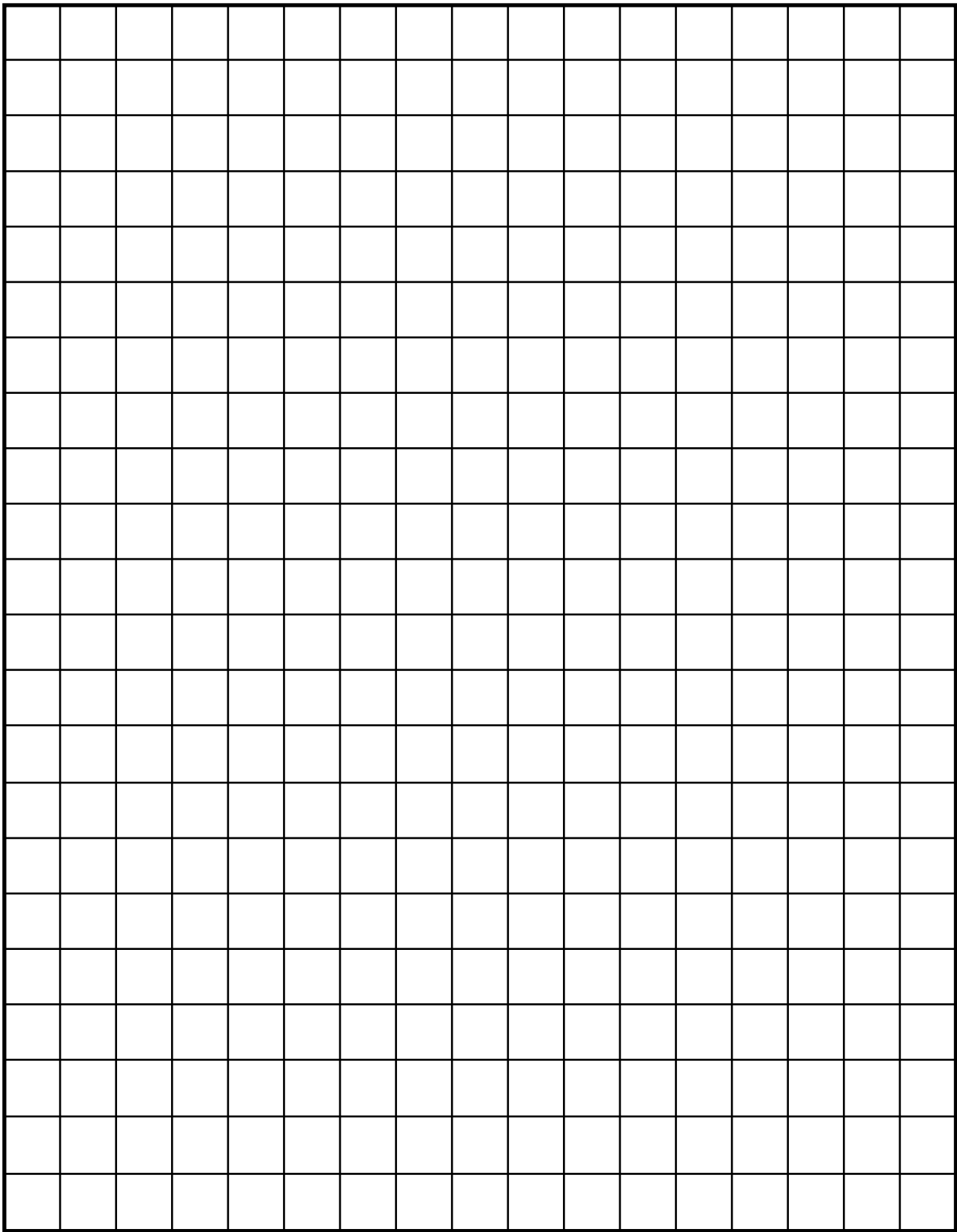


Division Facts I Know

- Circle the facts you know well.
- Keep this table and use it to help you divide.
- As you learn more facts, you may circle them too.

DIVISOR

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

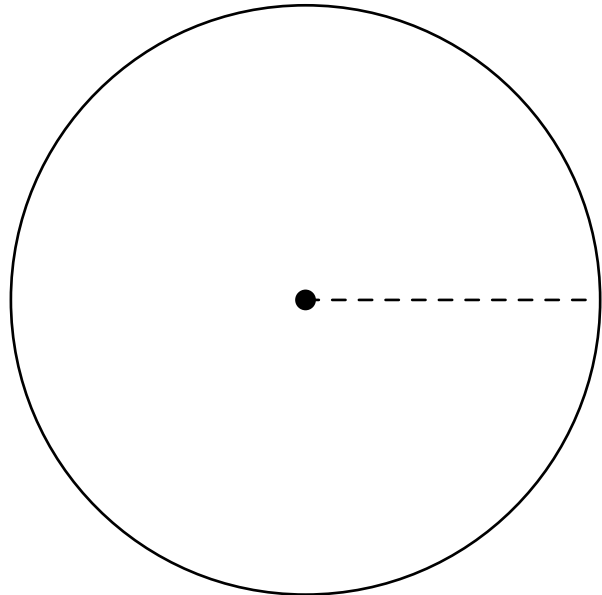
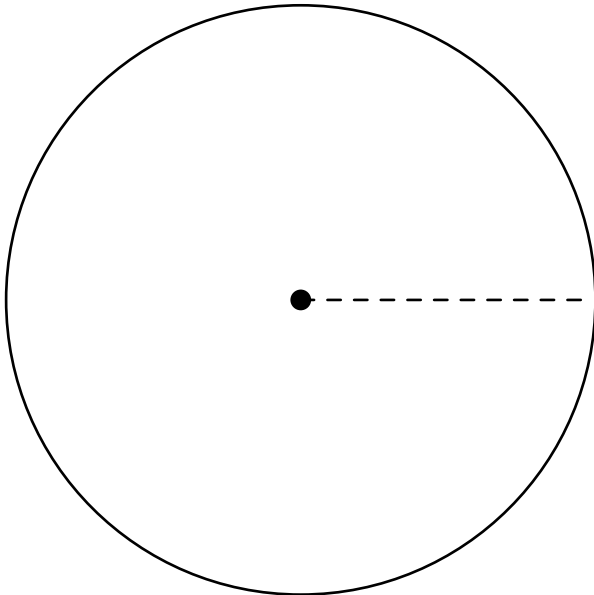
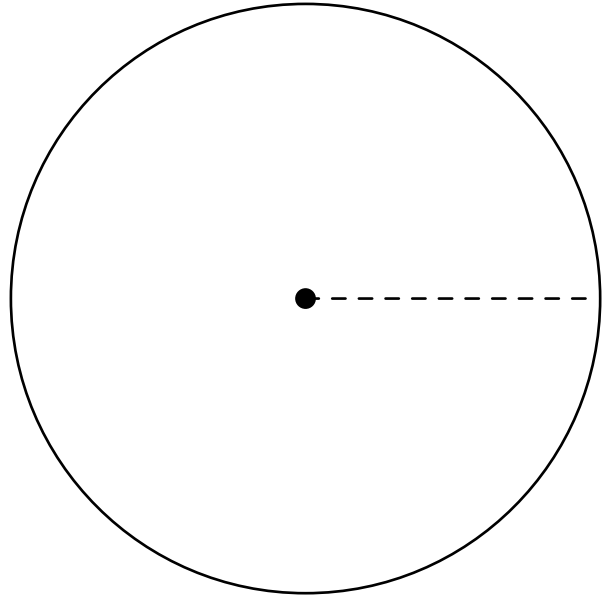
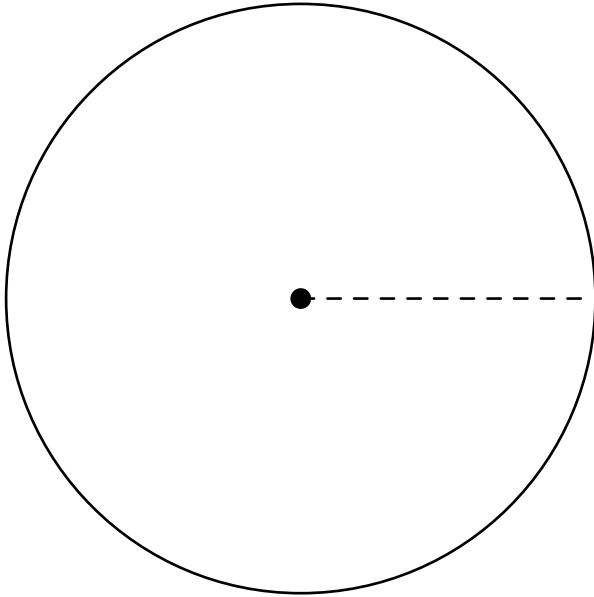


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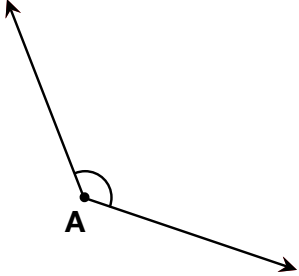
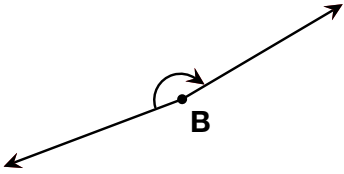
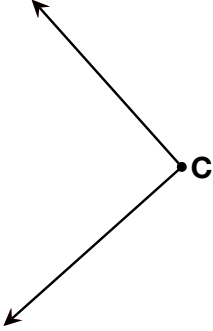
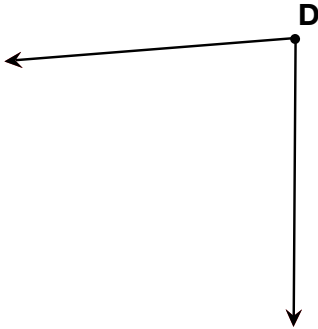
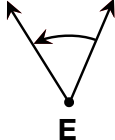
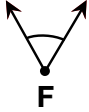
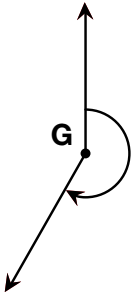
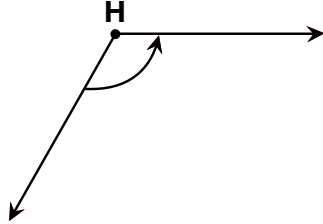
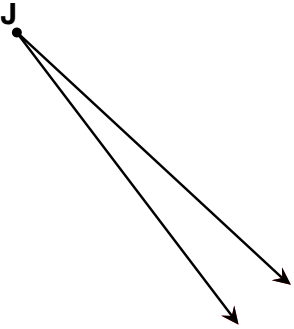
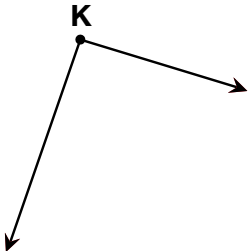

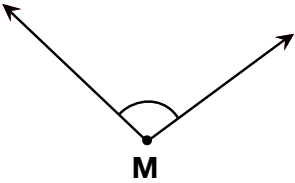
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Angle Circles



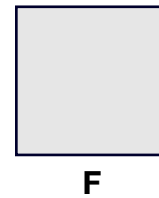
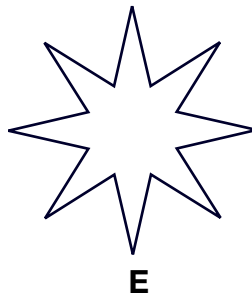
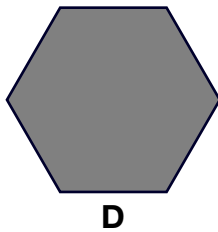
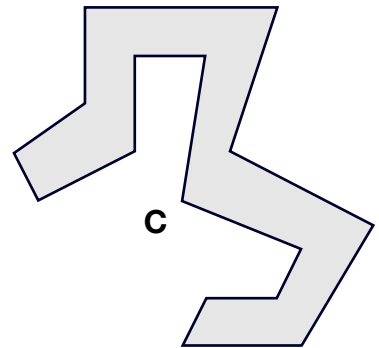
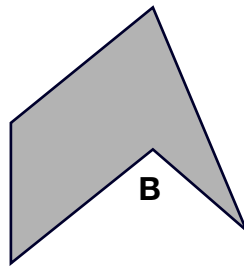
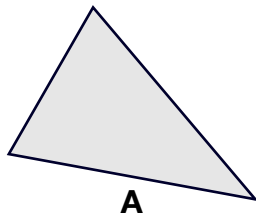
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Angle Sort Cards

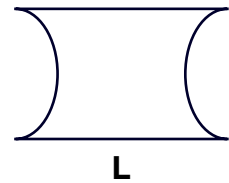
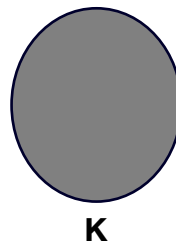
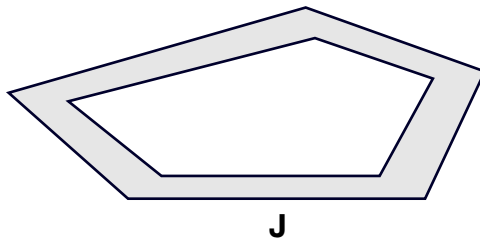
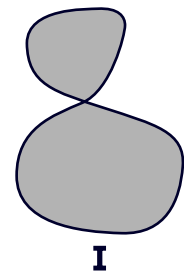
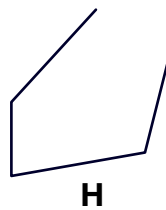
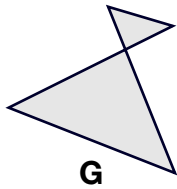
		
		
		
		

What is a Polygon?

These shapes are polygons.

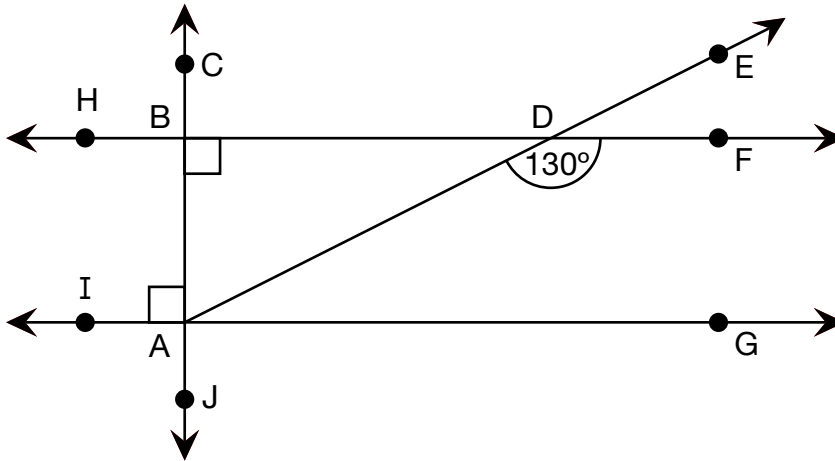


These shapes are not polygons.



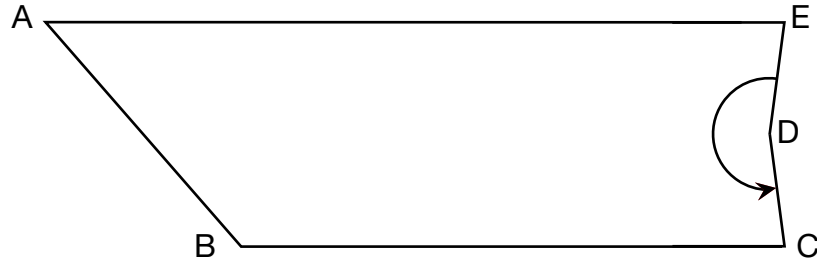
Lines, Angles, and Polygons Quiz

Use the picture below to answer Questions 1–8.



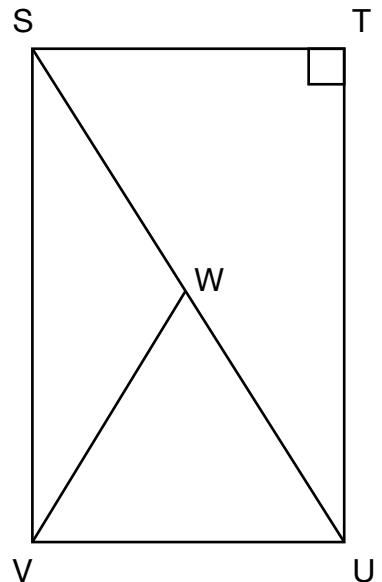
1. Is $\angle DAG$ acute, right, or obtuse? Explain why you think so.
2. Name an obtuse angle in the picture. _____
3. **A.** Circle point B in the picture.
B. Use a ruler to draw the line segment \overline{FG} .
4. Circle *all* the possible answers. \overrightarrow{BF} and \overrightarrow{AG} are _____.
A. parallel rays
B. intersecting rays
C. not intersecting rays
D. perpendicular rays
5. Circle *all* the possible answers. \overrightarrow{CA} and \overrightarrow{AG} are _____.
A. parallel lines
B. intersecting lines
C. not intersecting lines
D. perpendicular lines
6. Where do \overrightarrow{AE} and \overrightarrow{BF} intersect? _____.
7. Use a ruler to draw a new line in the picture that is parallel to \overrightarrow{CA} .
8. Find the measure of $\angle BDA$ and $\angle BAD$. Write the angle measures on the picture above.

Use the picture of polygon ABCDE below to answer Questions 9–11.



9. Circle the best estimate for the measure of $\angle A$. Do not use a protractor.
 110° 10° 85° 170° 50°
10. Circle the best estimate for the measure of reflex $\angle D$. Do not use a protractor.
 80° 170° 195° 45° 350°
11. A. Use a protractor to find the measure of $\angle B$ and $\angle E$ to the nearest degree.
 $\angle B =$ _____ $\angle E =$ _____
- B. Explain how you know your answers are reasonable by describing the size of $\angle B$ and $\angle E$.
12. Rectangle STUV is built from three triangles. Triangle UVW has three equal angles. Without using a protractor, find the measure of the angles below. Write the angle measures on the picture.

- A. $\angle WUV =$ _____
- B. $\angle WVS =$ _____
- C. $\angle TSU =$ _____



Name _____ Date _____

**Lines, Angles, and Polygons Quiz
Feedback Box**

	Expectation	Check In	Comments
Use addition and subtraction to find unknown angles. [Q# 8, 12]	E1		
Classify acute, obtuse, and right angles. [Q# 1, 2]	E2		
Identify points, rays, lines, and line segments. [Q# 3, 7]	E3		
Draw and identify intersecting, perpendicular, and parallel lines. [Q# 4, 5, 6, 7]	E4		
Estimate the size of an angle using benchmarks. [Q# 9, 10]	E11		
Use a protractor to measure angles. [Q# 11A]	E12		

Yes ...

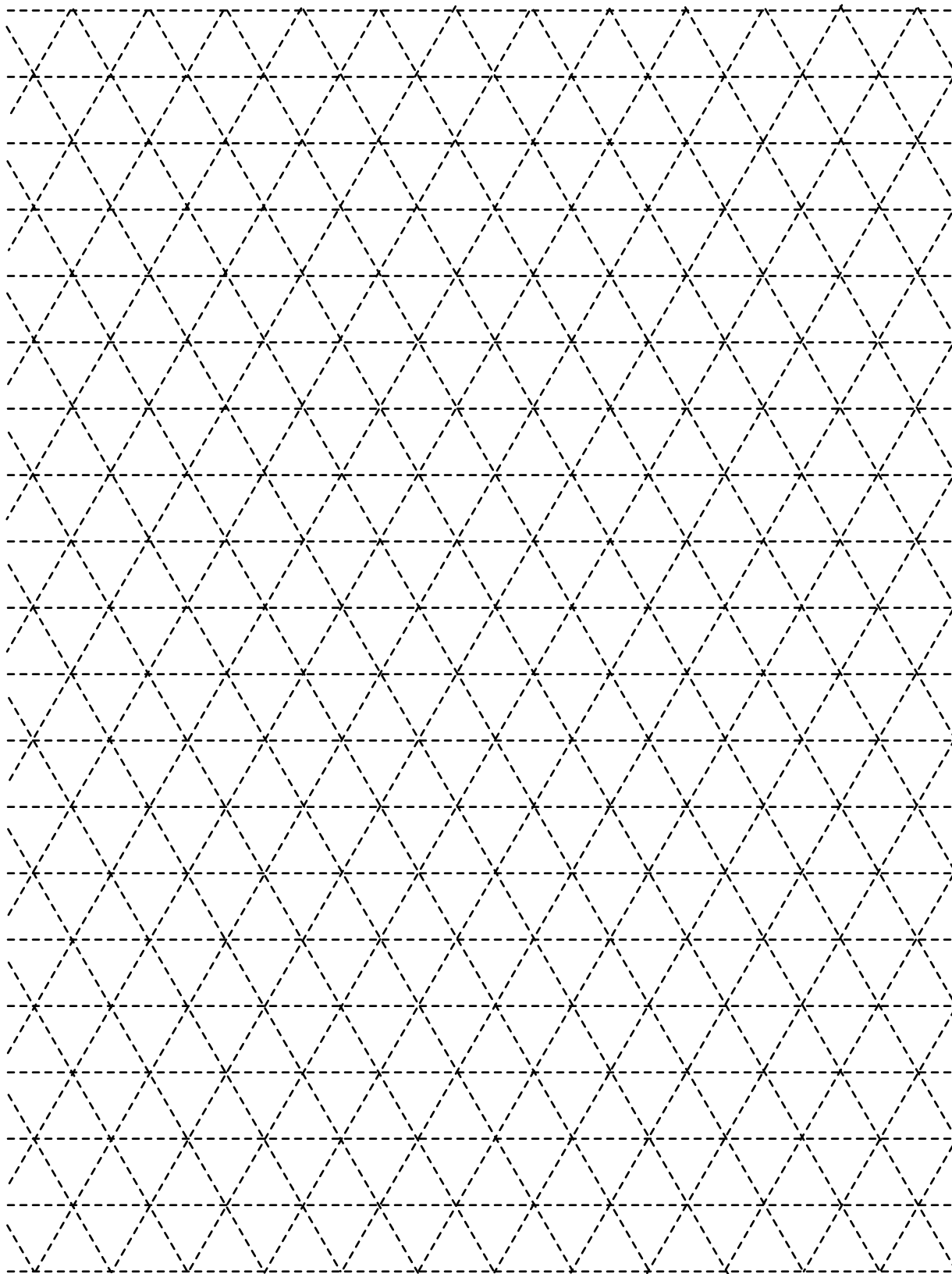
Yes, but ...

No, but ...

No ...

MPE3. Check for reasonableness. I look back at my solution to see if my answer makes sense. If it does not, I try again. [Q# 11B]				
MPE6. Use labels. I use labels to show what numbers mean. [Q# 8, 11A, and 12]				

Triangle Grid Paper

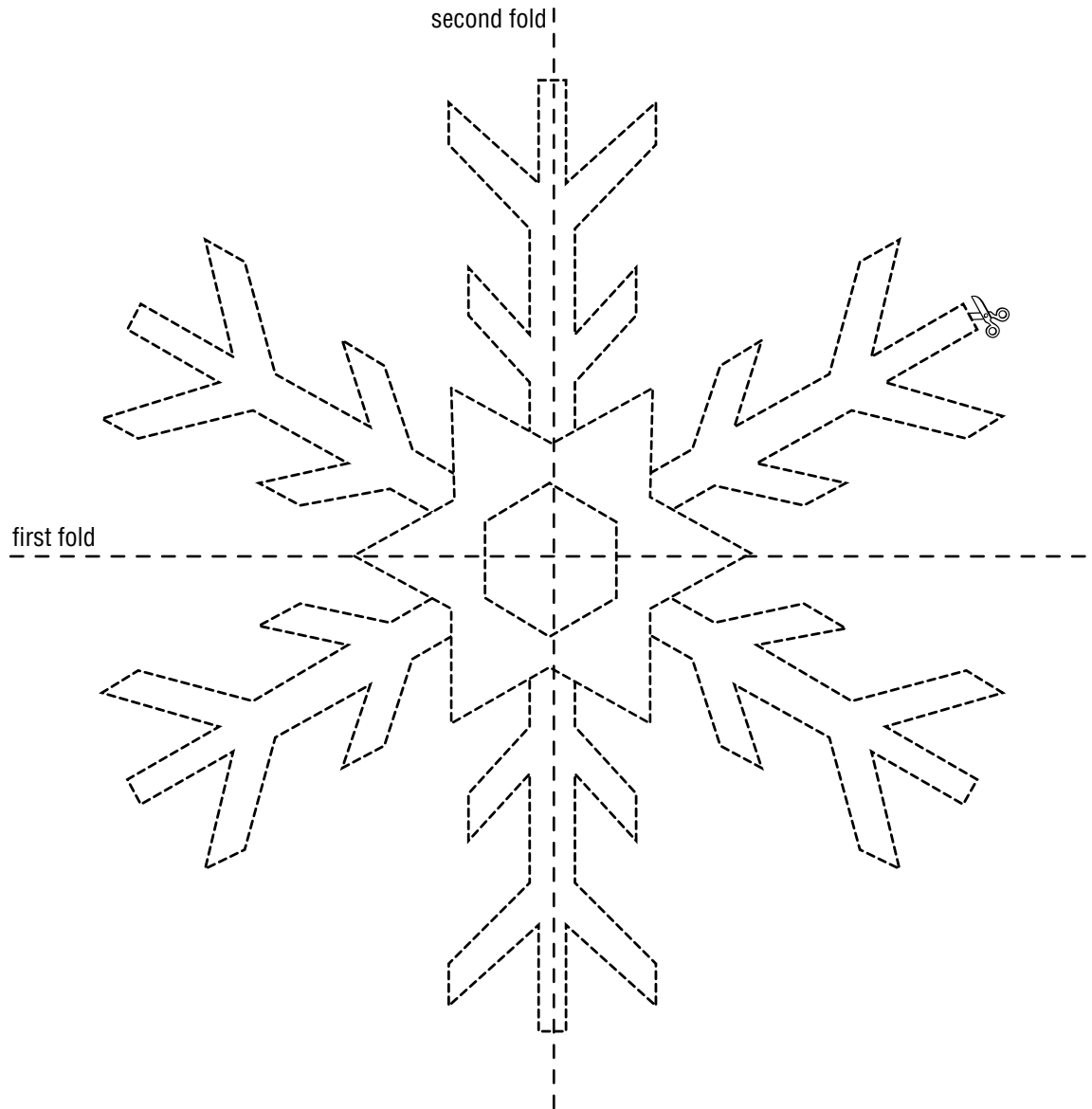


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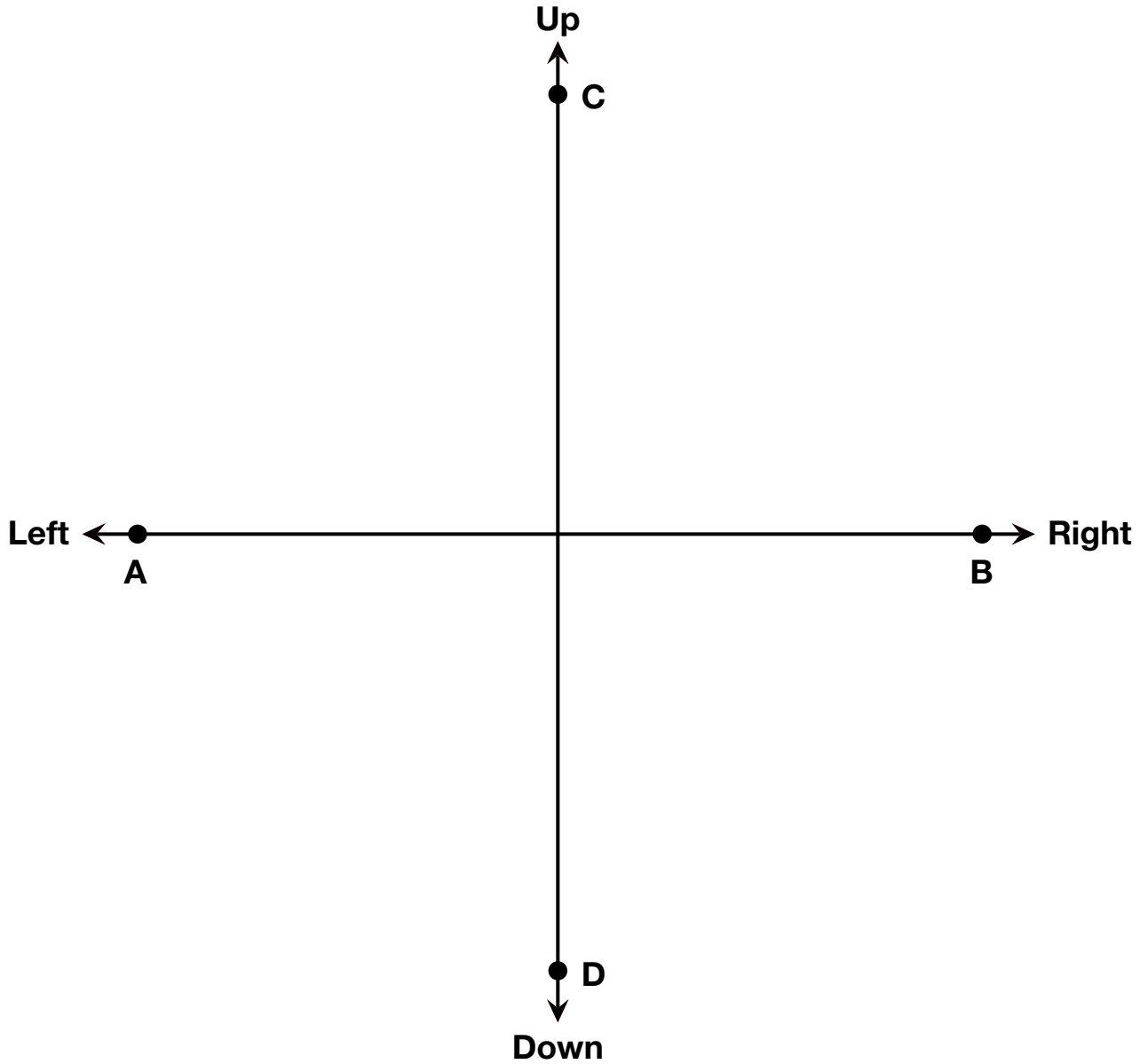
Date _____

Professor Peabody's Snowflake

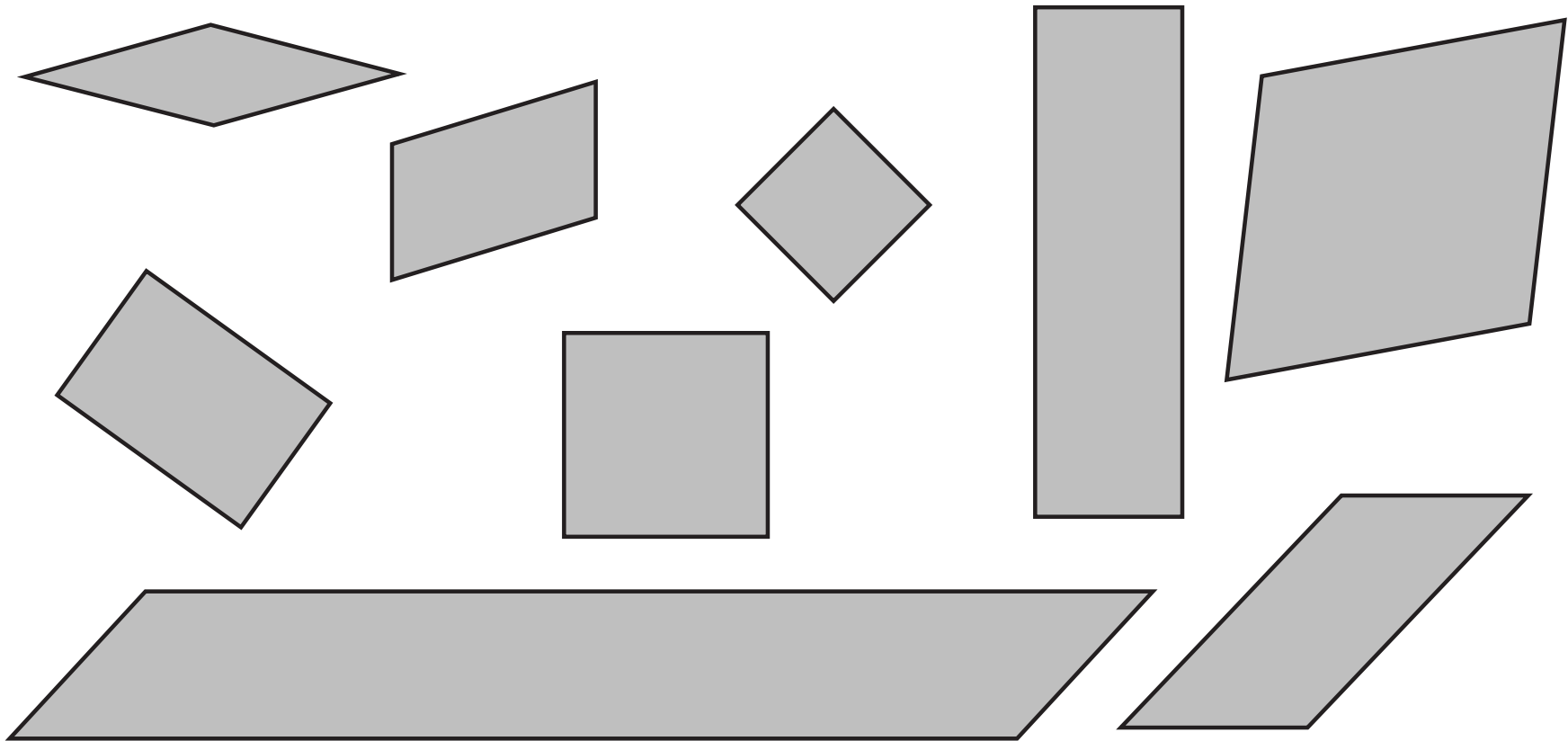


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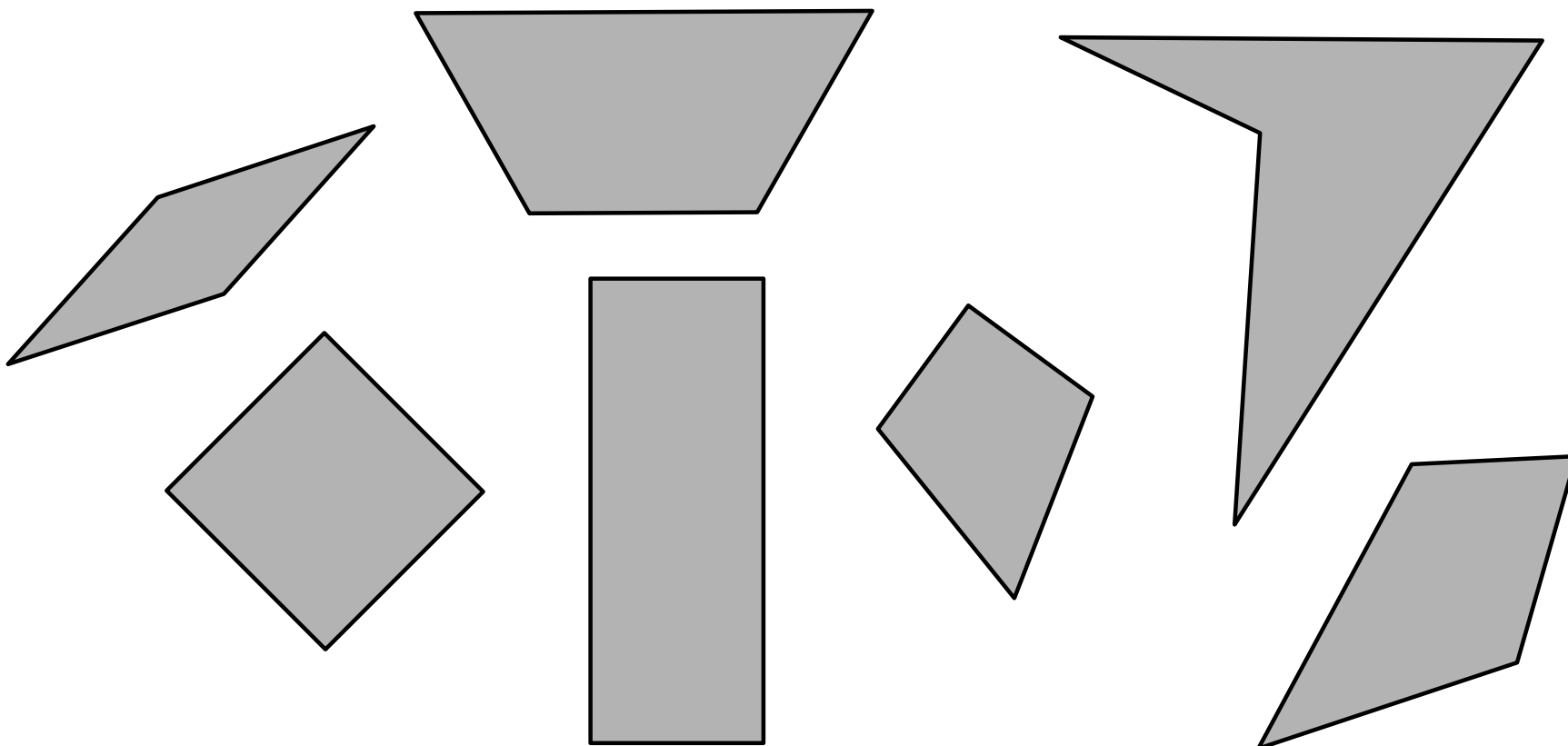
Where Is the Shape?



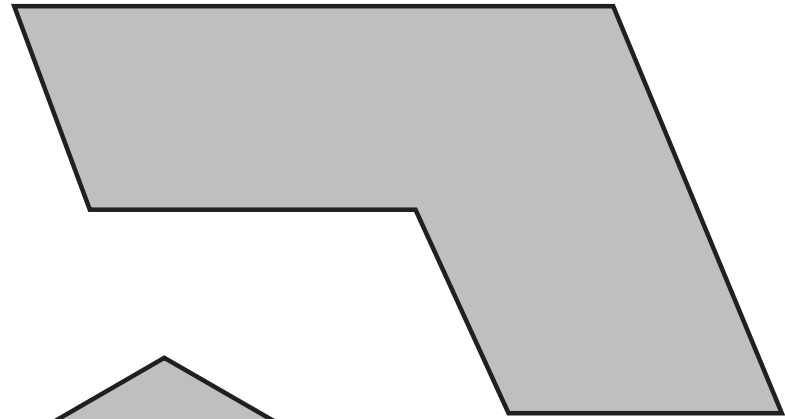
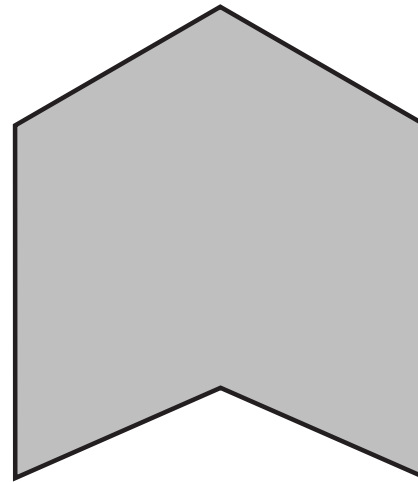
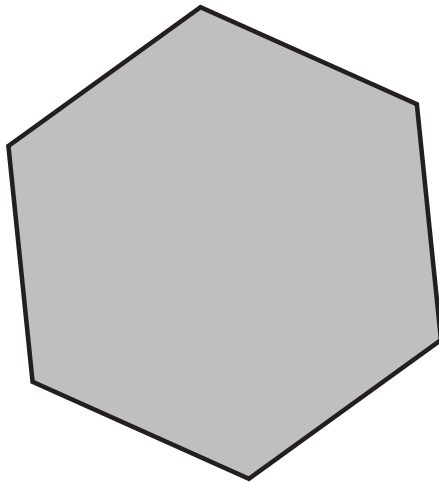
Parallelograms



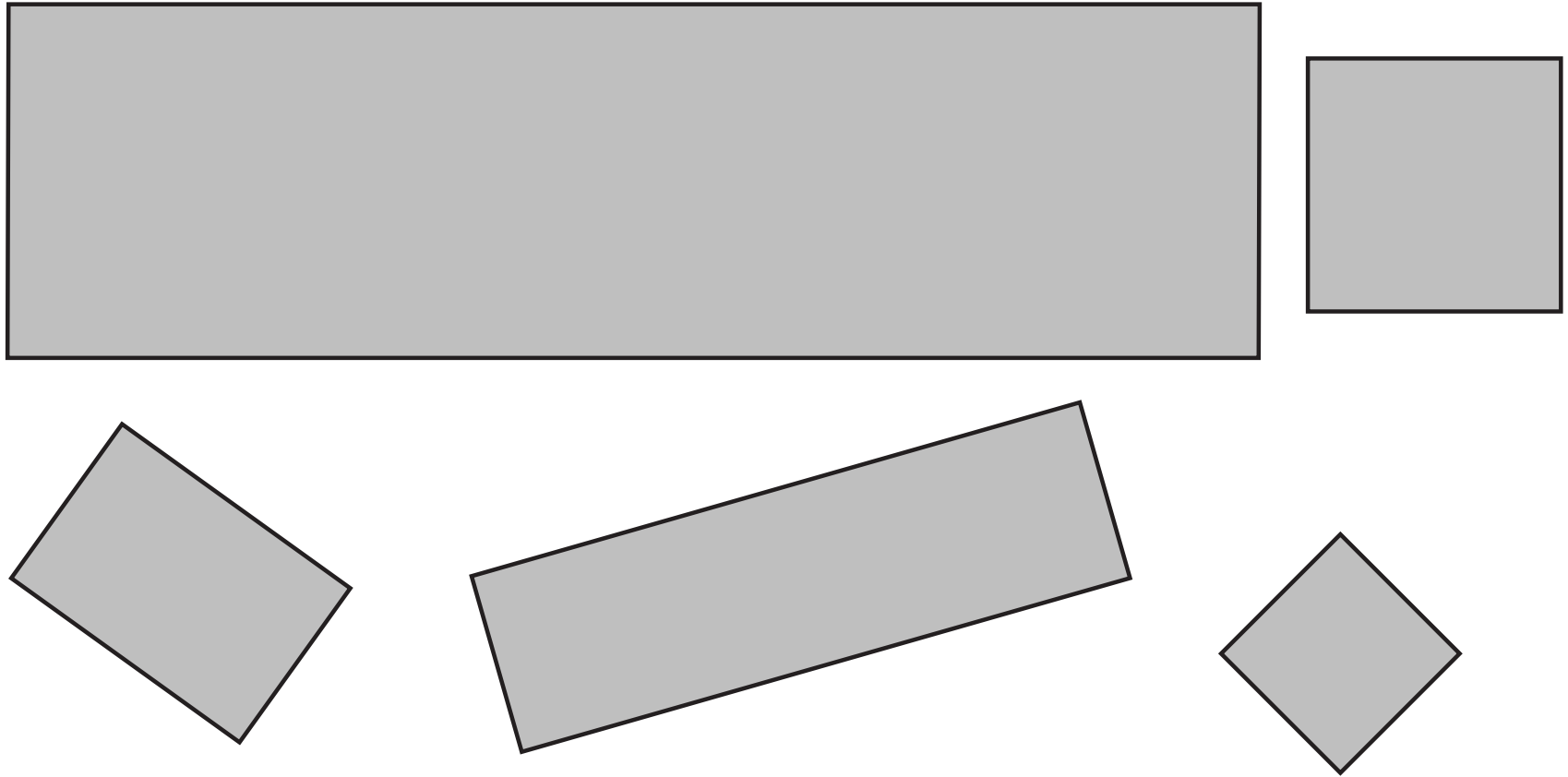
Quadrilaterals



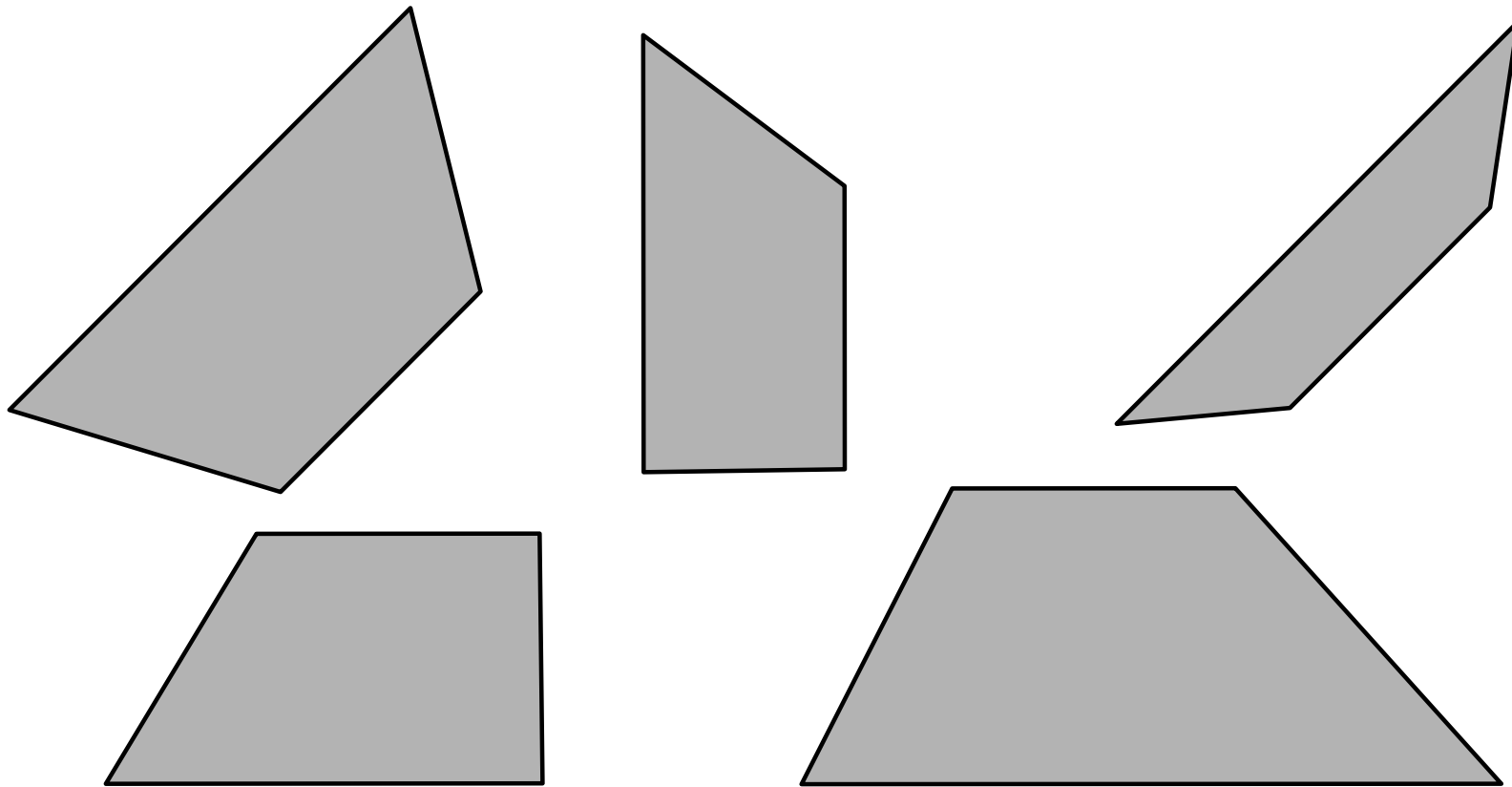
Hexagons



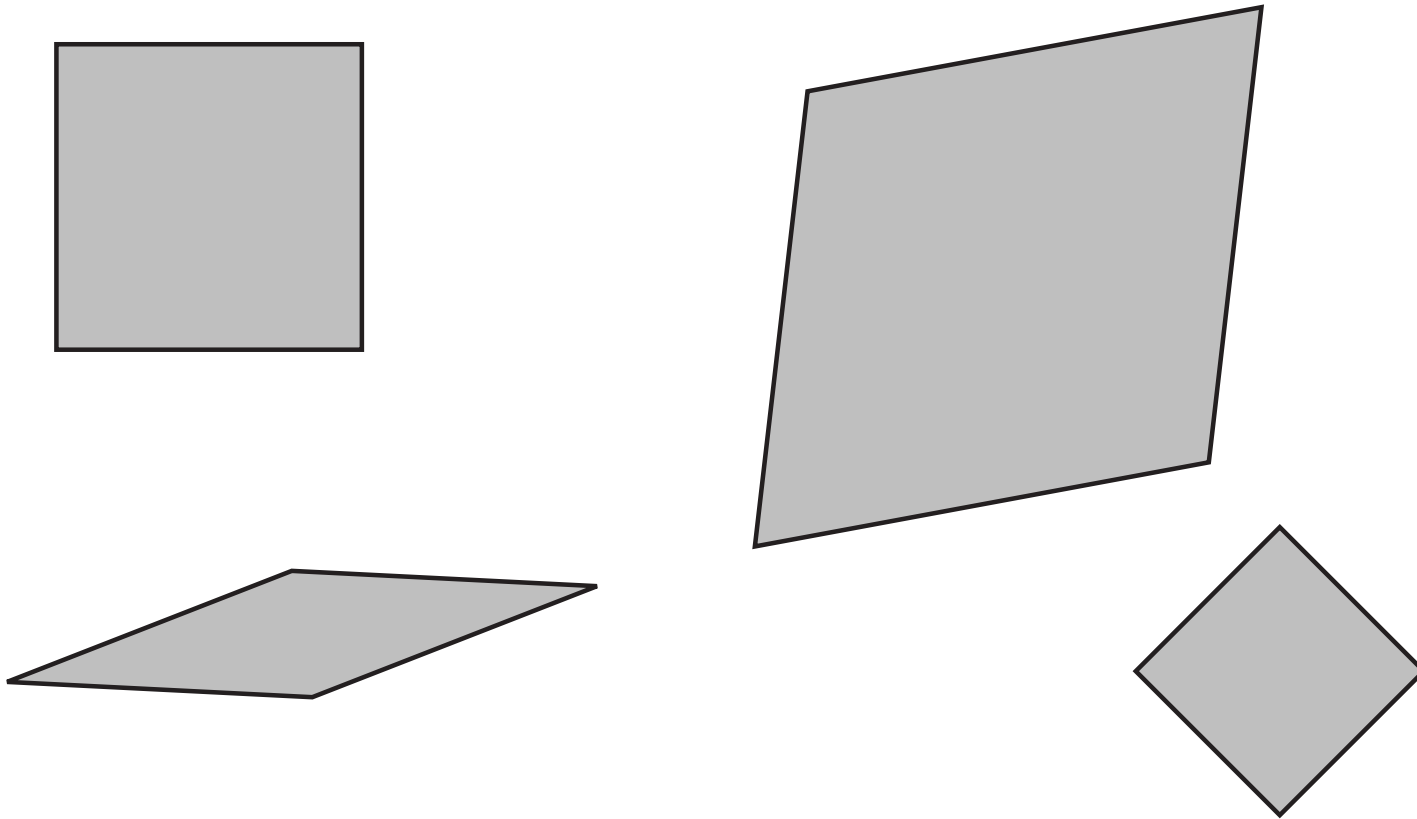
Rectangles



Trapezoids

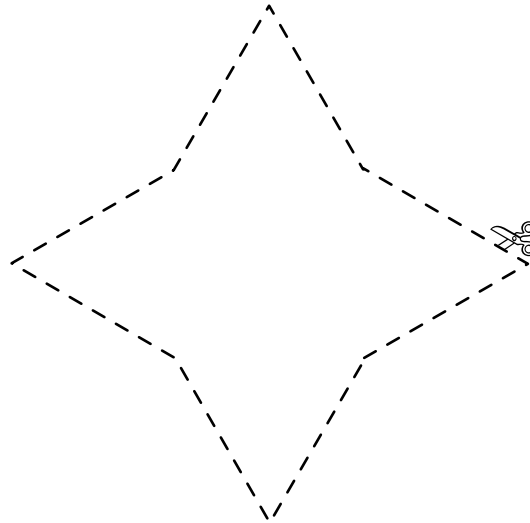


Rhombuses

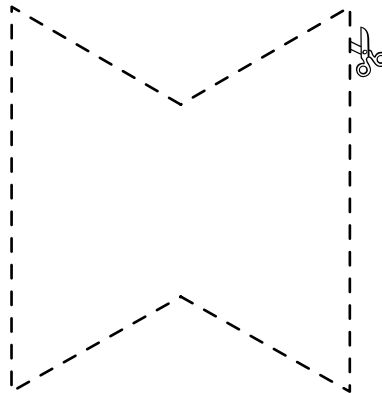


Shapes Quiz: Cut-Outs

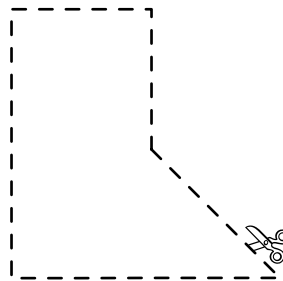
Cut out these shapes. Use them to answer Questions 3–4 on the Shapes Quiz.



Star



Butterfly

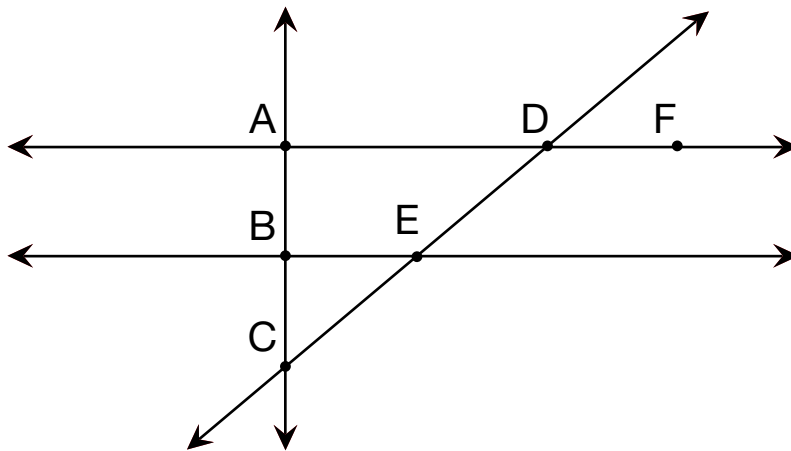


Boot

Shapes Quiz

You will need the following tools:

- Geometry Word Charts
- *Polygon Names* pages in the *Student Guide* Reference section
- 1 set of Power Polygons™
- *Shapes Quiz: Cut-Outs* page
- scissors
- ruler



Use the drawing above to answer Questions 1–2.

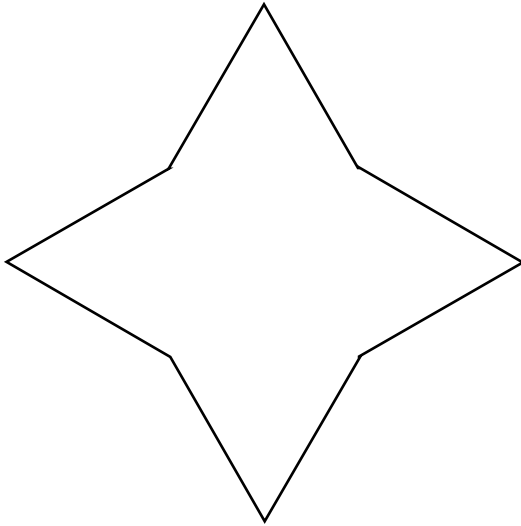
1. **A.** Name a line that intersects \overleftrightarrow{AD} , but is **not** perpendicular to \overleftrightarrow{AD} .

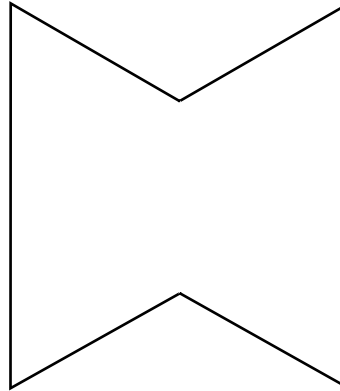
- B.** Use a ruler to draw a line parallel to \overleftrightarrow{DE} that goes through point F.

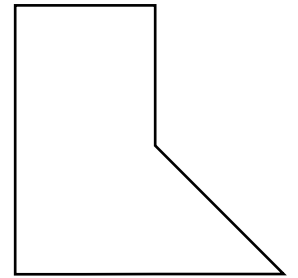
2. Ana said, “Quadrilateral ABED is a trapezoid.”
Do you agree with Ana? Use properties to show or tell how you decided.

Cut out the shapes on the *Shapes Quiz: Cut-Outs* page. Use the shapes to answer Questions 3–4. You can fold them or turn them.

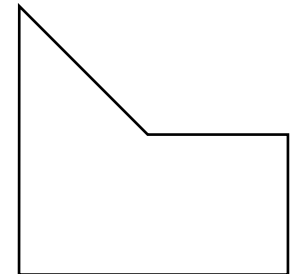
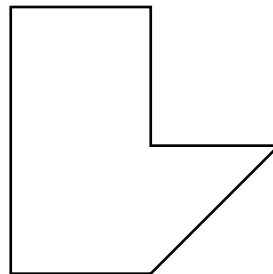
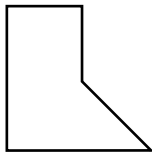
3. Use a ruler to draw the lines of symmetry on each shape below. Write the number of lines of symmetry under each shape.

Star

Butterfly

Boot

4. **A.** Circle the shape below that is congruent to the boot in Question 3.



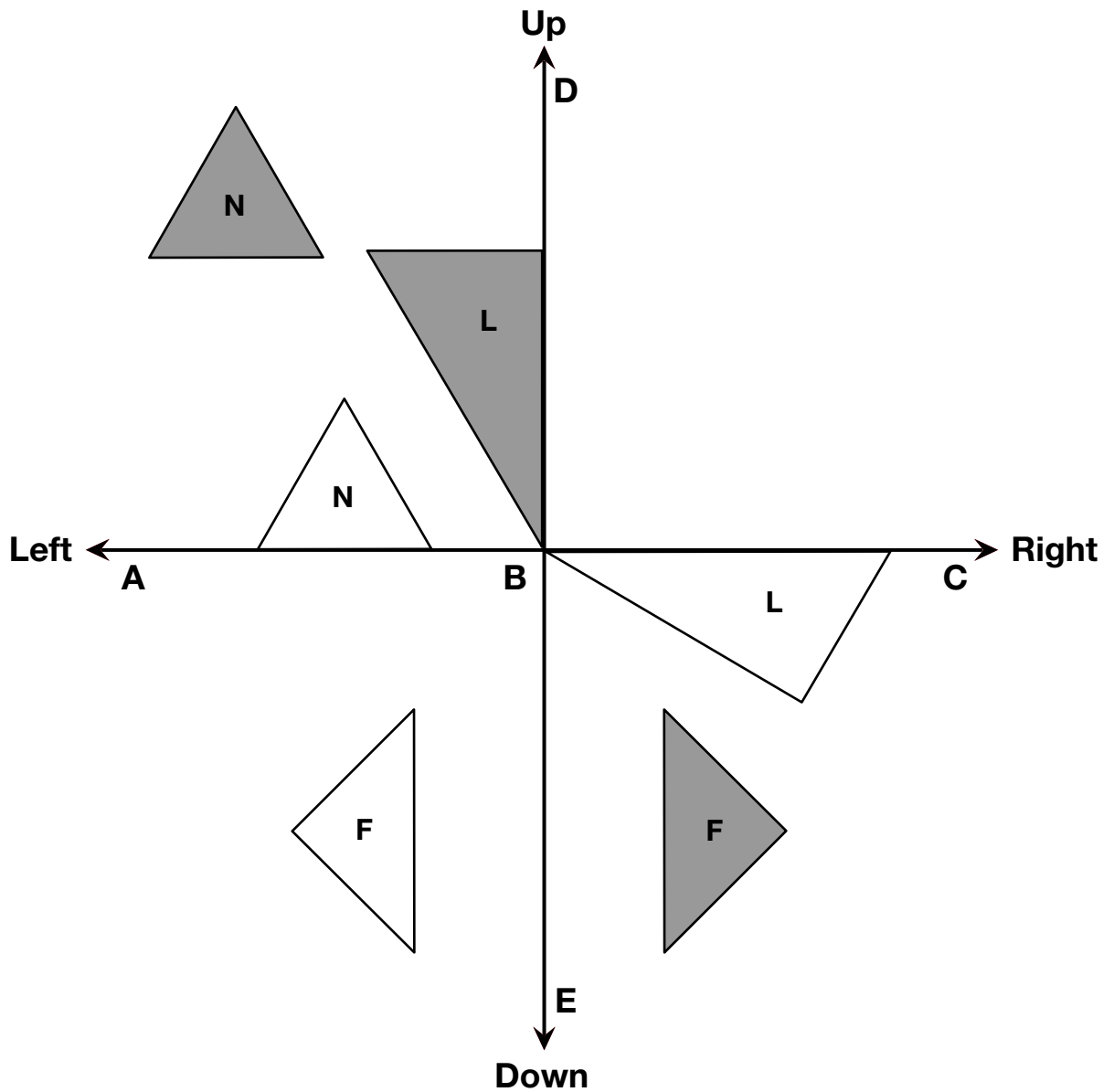
- B.** Show or tell how you know the shape you chose is congruent to the boot.

5. Describe how each shaded triangle below can move to its white copy.

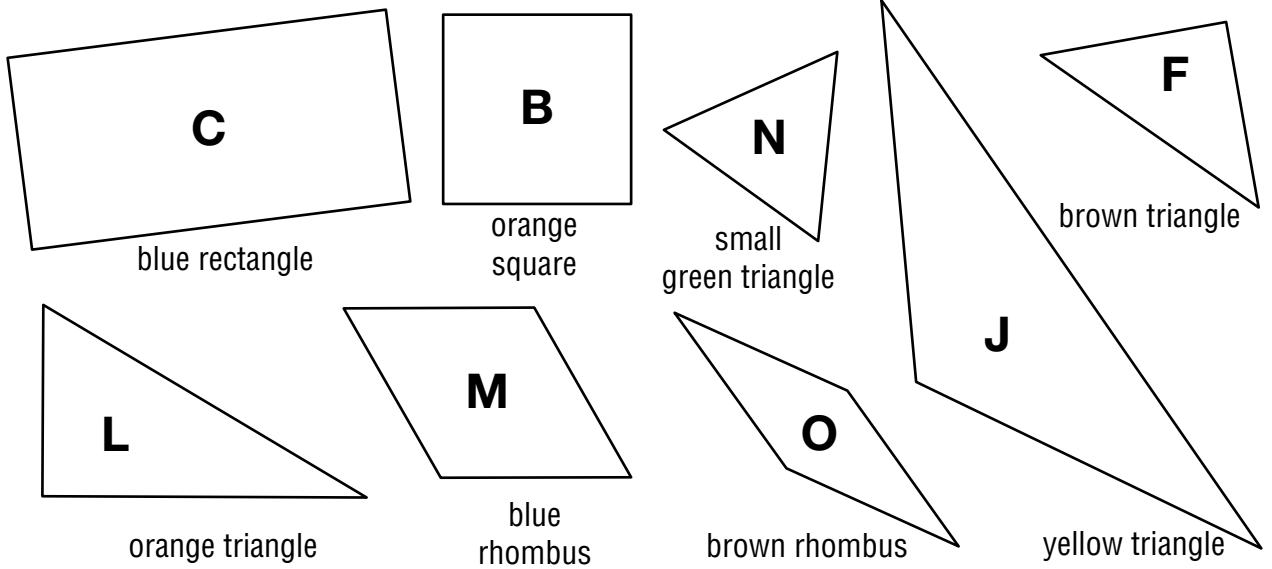
A. Triangle F

B. Triangle N

C. Triangle L



6. Use these eight Power Polygons™ from your set for this question.



Put shapes with three sides into Box A.
 Put shapes with right angles into Box B.
 Some may go in both boxes. Some may go outside the boxes.
 Sketch each shape where it belongs. Write the letter inside.
 The drawing shows you how to start.

3 sides

one or more right angles

Box A

Box B

7. Use your work from Question 6 to answer these questions:

A. What is one name for the shapes in Box A? _____

B. What is one name for the shapes in Box B that are **not** also in Box A?

C. What is one name for the shapes that are in both Box A and Box B?

D. List three properties of the shapes that are in both A and B.

**Shapes Quiz
Feedback Box**

	Expect- ation	Check In	Comments
Draw and identify perpendicular and parallel lines. [Q# 1]	E4		
Describe shapes using their properties. [Q# 2, 7D]	E5		
Analyze shapes using their properties. [Q# 2, 3, 6, 7]	E5		
Classify shapes using their properties. [Q# 6, 7]	E6		
Identify line (reflective) symmetry. [Q# 3]	E7		
Identify congruent shapes. [Q# 4]	E8		
Identify slides, flips, and turns of shapes. [Q# 5]	E9		
Explain answers using properties. [Q# 2, 4B]	E10		