BRIDGES IN MATHEMATICS 1

GRADE 1 SUPPLEMENT

Set C8 Geometry: Congruent Shapes Calendar Pattern

Includes

Skills & Concepts

- ★ recognize and construct shapes that are congruent
- ★ identify, name, and compare triangles, rectangles, rhombuses, parallelograms, and trapezoids
- ★ describe geometric attributes of shapes to determine how they are alike and different
- ★ recognize shapes when viewed from different perspectives and orientations
- ★ identify, describe, and extend repeating patterns

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P0510

Bridges in Mathematics Grade 1 Supplement
Set C8 Geometry: Congruent Shapes Calendar Pattern

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P0510

Bridges in Mathematics is a standards-based K–5 curriculum that provides a unique blend of concept development and skills practice in the context of problem solving. It incorporates the Number Corner, a collection of daily skill-building activities for students.

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Set C8 ★ April Calendar Pattern

CALENDAR GRID

Congruent Shapes

Overview

This set of Calendar Grid markers replaces the student-made markers in the month of April. Each marker presents a pair of figures, and students are challenged to determine whether the two are identical in shape and size (congruent) or not.

Skills & Concepts

★ recognize and construct shapes that are congruent

★ identify, name, and compare triangles, rectangles, rhombuses, parallelograms, and trapezoids

★ describe geometric attributes of shapes to determine how they are alike and different

★ recognize shapes when viewed from different perspectives and orientations

★ identify, describe, and extend repeating patterns

You'll need

★ Calendar Grid pocket chart

★ Month and Year Calendar Grid cards

★ April Congruent Shapes Calendar Markers (available at **http://gotomlc.org/calmarkers**) Print 1 copy of the calendar marker sheets in color, single-sided, on white cardstock. Cut the calendar markers apart and laminate if desired.

★ Calendar Grid Observations sheet from Set C2 (see Advance Preparation)

★ 2 clear geoboards (half-class set is optional)

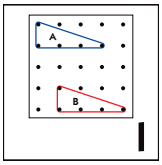
★ helper jar containing a popsicle stick for each child with his/her name on it

Advance Preparation Erase the Calendar Grid Observations sheet from Set C2. Draw 4 columns. Label the columns at the top of the first sheet as shown below for use with this month's markers.

Calendar Grid Observations			
Date	Shape A	Shape B	A & B Congruent?

Introducing the Congruent Shapes Calendar Grid Pattern

Open your first Number Corner lesson in April by directing students' attention to the calendar grid. Place the first marker in the correct pocket, and ask children to pair-share observations.

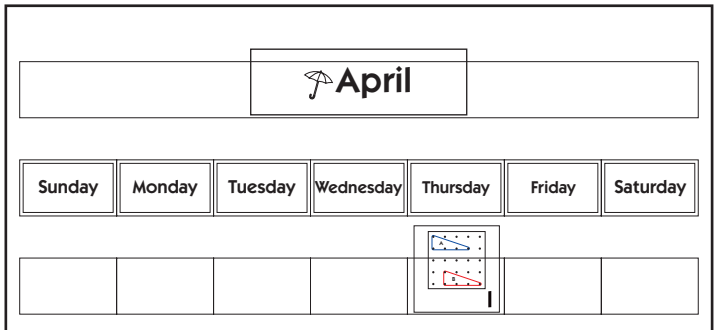


April Calendar Pattern (cont.)

After a few moments, pull popsicle sticks from your helper jar to call on children to share their observations with the class.

> ***Students*** *It has two triangles on it.*
> *They have letters on them, A on the top one, and B on the bottom one.*
> ***Students*** *Those are skinny triangles.*
> *There are dots, kind of like a geoboard.*

After they have had a chance to share some of their observations, work with input from the children to record the date and the name of each shape on the observation sheet.



Calendar Grid Observations

Date	Shape A	Shape B	A & B Congruent?
1	triangle	triangle	

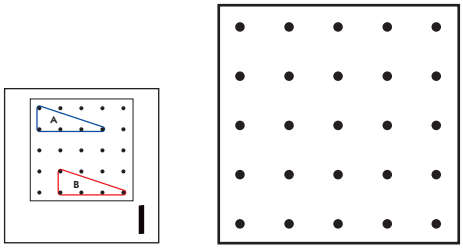
Then read the heading on the last column to the class and explain that two shapes are *congruent* if they are exactly the same shape and the same size. Ask students to put their thumbs up if they believe the two shapes on the marker are congruent, down if they believe the two shapes are not congruent, and sideways if they are not sure. Then call on volunteers to share their thinking with the class.

> ***Teacher*** *I see a lot of thumbs up, but a few children are showing thumbs down, and some are showing thumbs sideways, which tells me that they're not sure whether these two shapes are congruent or not. Who would like to share and explain their idea?*
>
> ***Terrell*** *They look the same to me so I put my thumbs up.*
>
> ***Teacher*** *What makes you think they're the same size and shape, Terrell?*
>
> ***Terrell*** *They just look that way. I can tell with my eyes.*
>
> ***Lupe*** *I said yes because they're both skinny triangles.*
>
> ***Sara*** *I said yes because they match. You can tell by looking. They both go up and over the same.*

Chances are, most of your students will agree that the two triangles look congruent. One way to be sure is to build each figure on a clear geoboard and superimpose one board on top of the other, lining up the two figures to see if they are exactly the same shape and the same size. Suggest this to the students, and then work with their input to construct a copy of Shape A on a geoboard.

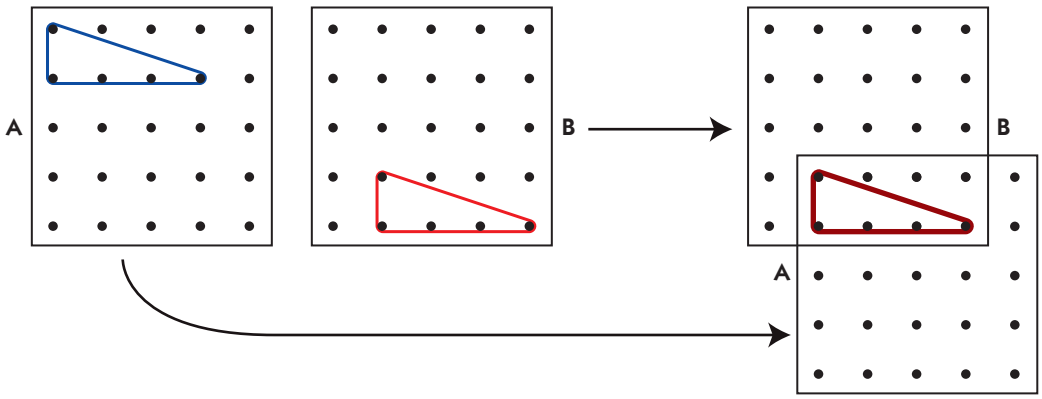
April Calendar Pattern (cont.)

Teacher *It seems like most of us agree that the two triangles look like they're exactly the same shape and size. Let's test this out so we can be absolutely sure. I have two clear geoboards here. Let's build Shape A on one of the boards, and build Shape B on the other. Then we can set the two shapes on top of each other and see if they really do match each other exactly. What do I need to do to build Shape A on this board?*



Students *Start in the top corner, the one on the left.*
Pull the rubber band down and stretch it over.
Make it go over to almost the last peg in the second row.

Once Shape A is built, pull a stick from your helper jar to select a student to build Shape B on the other board. Then help the student hold the two boards together in such a way as to superimpose the two triangles. Are they exactly the same size and shape?



Students *Yes! They fit exactly on top of each other!*
I knew it just by looking.
I knew it because you can tell by the dots. They both go up 1 dot and over 3 dots.

Finally, work with students' input to record the results of the geoboard test on the observation chart. As you do so, remind students that when we say two shapes are congruent, that means those two shapes are exactly the same shape and size.

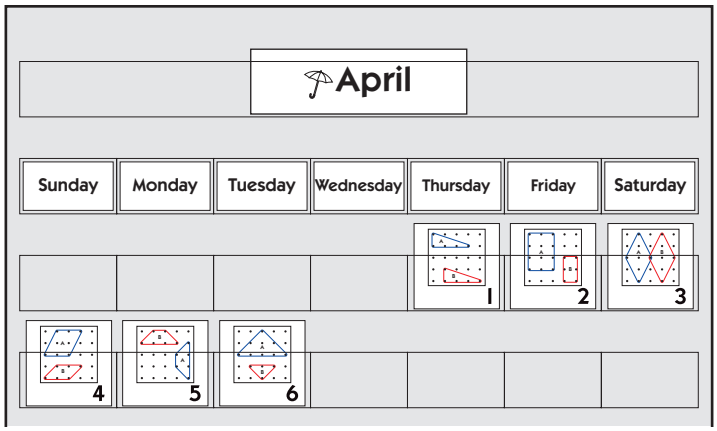
Calendar Grid Observations			
Date	Shape A	Shape B	A & B Congruent?
1	triangle	triangle	A & B ARE congruent

April Calendar Pattern (cont.)

Continuing through April with the Calendar Grid

Each day, have a helper point to the markers that have been posted in the pocket chart as the class names the shapes and reports whether or not they are congruent. Have children predict what the next marker will show before you place it on the chart.

> ***Teacher*** *Let's say the name of the shapes on each marker we've posted so far, and say whether they're congruent or not. Then we'll make some predictions about what we'll see on the marker for today. Antonio, will you point to the markers as we name each shape?*

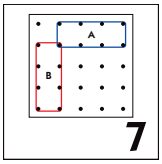


> ***Students*** *Triangles, congruent; rectangles, not congruent; rhombuses, congruent; parallelograms, not congruent; trapezoids, congruent; triangles, not congruent.*

> ***Teacher*** *Talk with the person next to you about what we might see on the marker for today. Put your thumbs up when you have an idea, and I'll pull sticks from the jar to pick children to share with the class.*

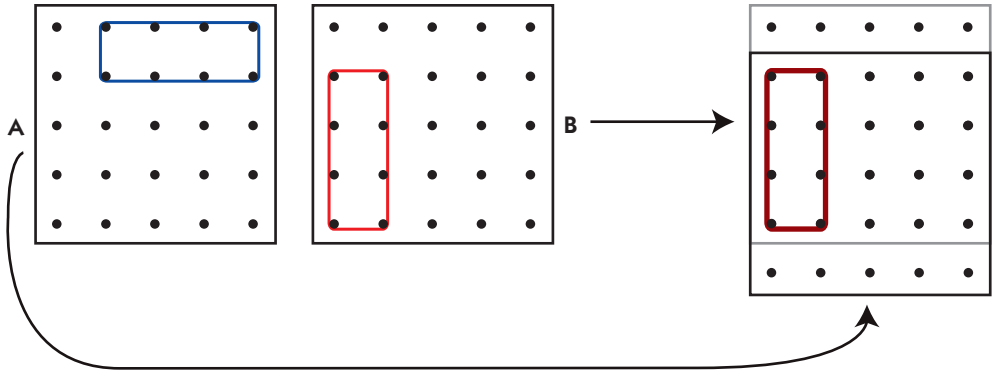
> ***Students*** *It's going to have a 7 on it for sure because 7 comes after 6.*
> *It will have 2 shapes, and they'll probably be the same, like 2 triangles or something.*
> *It might be rectangles because maybe rectangles always come after triangles on this pattern.*
> *I think they'll be the same size and shape because look how it goes so far: same, not the same; same, not the same; same, not the same; so it should be same today.*

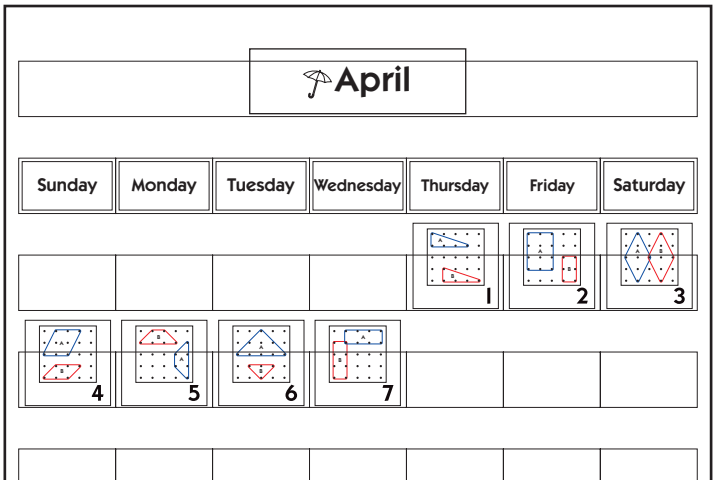
After students have shared some of their predictions, post the marker for the day. Ask students to share their observations. Then work with the group to test for congruence by building both shapes on the geoboards and superimposing them.



April Calendar Pattern (cont.)

Students *Yep, it's two rectangles.*
They're congruent. I know because of the pattern.
I can tell by looking. They look the same.
They look different to me. One is flat and the other goes up and down.
But they're the same. If you just turned one, it would fit on top of the other.
Also, both of them fill up 3 squares, so you can tell they're the same size.
Can I try it on the geoboards and see for sure?





Calendar Grid Observations

Date	Shape A	Shape B	A & B Congruent?
1	triangle	triangle	A & B ARE congruent
2	rectangle	rectangle	A & B are NOT congruent
3	rhombus	rhombus	A & B ARE congruent
4	parallelogram	parallelogram	A & B are NOT congruent
5	trapezoid	trapezoid	A & B ARE congruent
6	triangle	triangle	A & B are NOT congruent
7	rectangle	rectangle	A & B ARE congruent

Here is a summary of the questions and prompts mentioned so far, as well as some others you might use through the month:

- Let's name the shapes on each marker and tell whether or not they are congruent.
- What shapes do you think we'll see on the next marker? Do you think they will be congruent or not? Why?
- How can we check to be sure these two shapes are actually congruent or not?
- What if the two shapes are exactly alike except that one is smaller than the other? Are they congruent? Why not?
- When mathematicians say two shapes are congruent, what do they mean?
- How do you know that the shapes on today's marker are rectangles, not triangles (trapezoids, not parallelograms; triangles, not trapezoids)?
- The next time we get a marker with a pair of triangles (rectangles, rhombuses, parallelograms, trapezoids), do you think they will be congruent? Why or why not?

April Calendar Pattern (cont.)

Extensions

- While it is important to conduct the geoboard test for congruence each day, you can vary the routine by having a couple of volunteers build and compare the shapes on the day's marker after Number Corner, and report to the class at the end of the day. You can also involve all the children by splitting your class into groups of four and giving each group 2 geoboards. Have two of the children in each group build Shape A while the other two build Shape B. Then have the groups of four superimpose their boards and discuss the results as a class.
- Introduce the symbols for congruence and non-congruence (shown below), and use them on your observation chart instead of writing out the results in longhand.

$A \cong B$	$A \ncong B$
Shape A is congruent to Shape B.	Shape A is not congruent to Shape B.

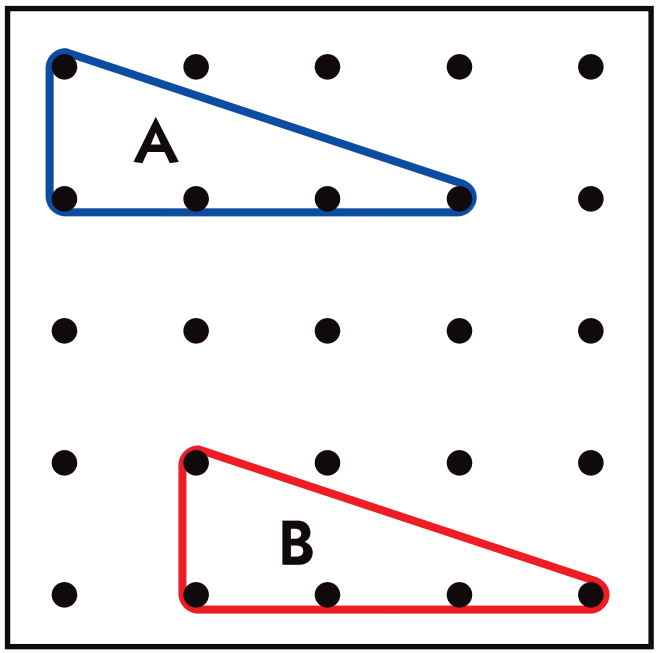
- Encourage children to build examples of congruent and non-congruent shapes using geoboards, pattern blocks, or polydrons.
- Have students look for examples of congruent and non-congruent shapes on the playground, in the gym, in the cafeteria, and so on.

April Calendar Pattern (cont.)

NOTE Below is a representation of the April calendar grid. The full-size calendar markers are available at **http://gotomlc.org/calmarkers**.

Print 1 copy of the calendar marker sheets in color, single-sided, on white cardstock. Cut the calendar markers apart and laminate if desired.

April Congruent Shapes Calendar Markers Sheet 1 of 16



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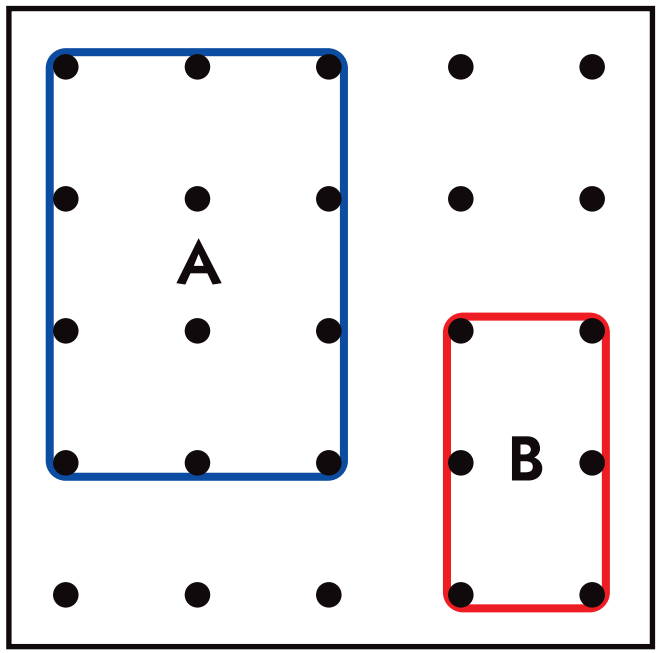

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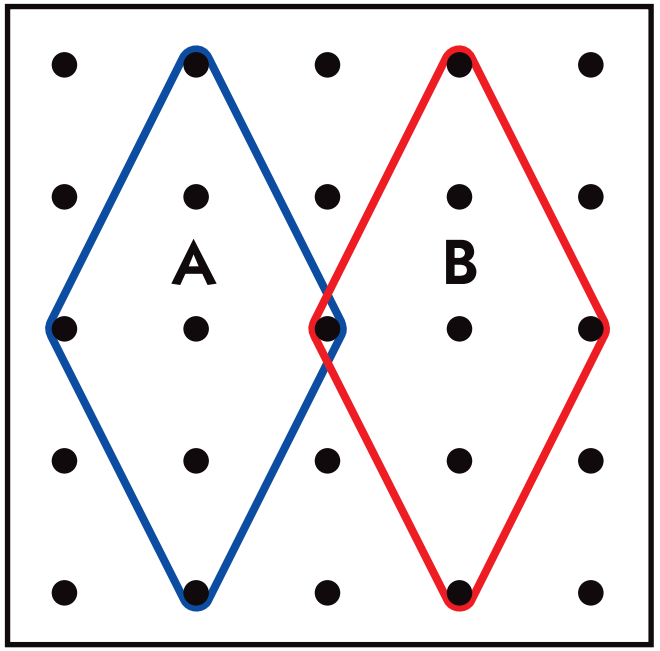
April Congruent Shapes Calendar Markers Sheet 2 of 16



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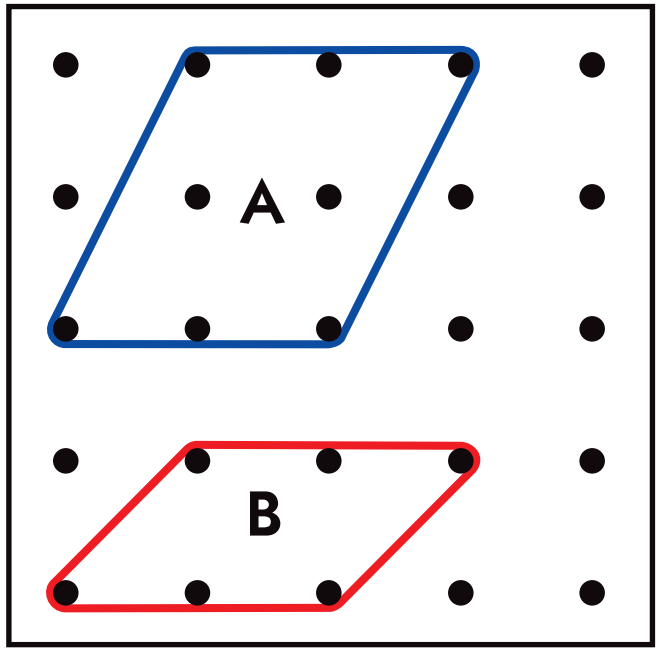

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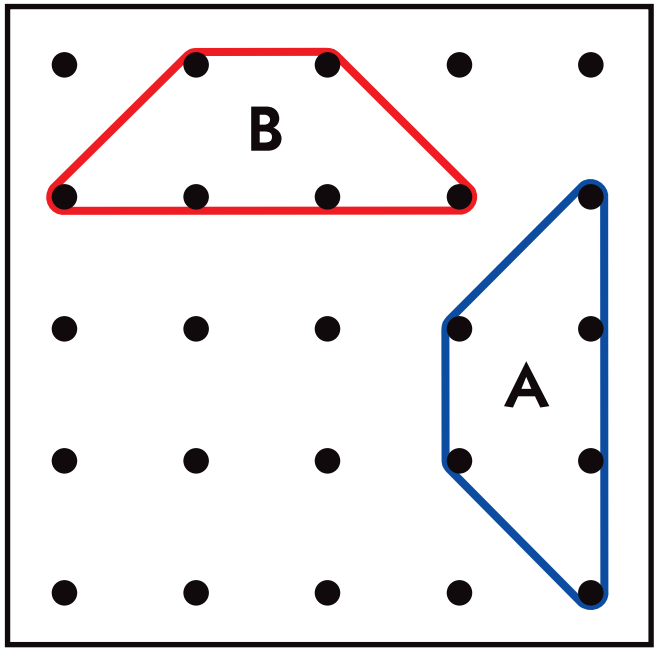

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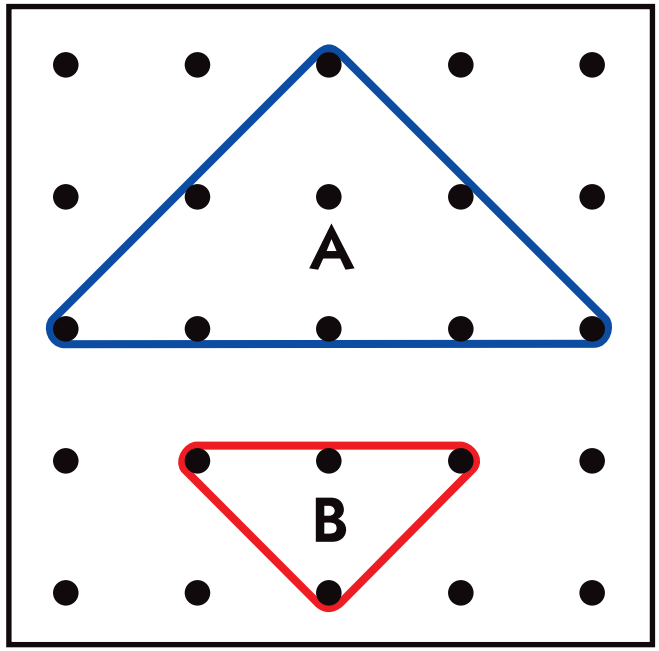

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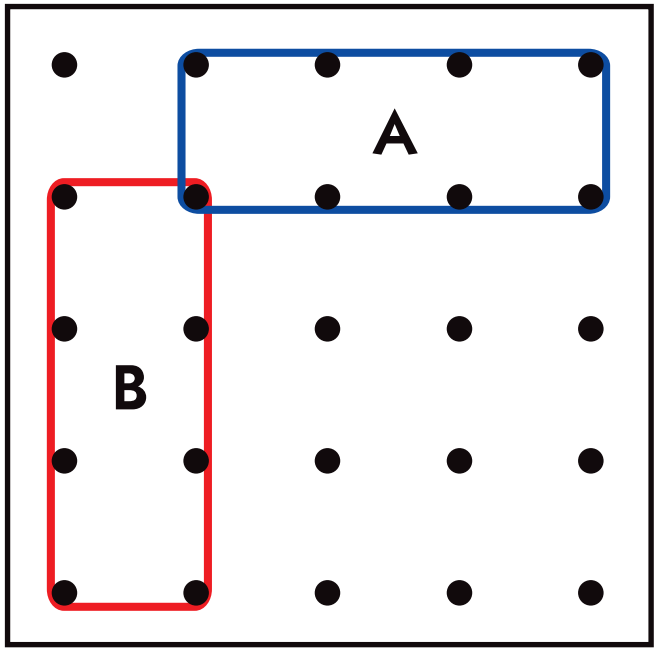

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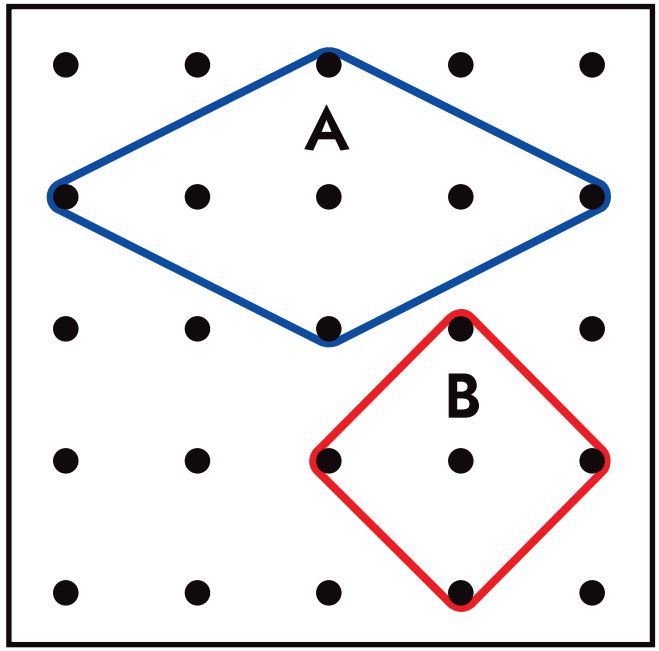

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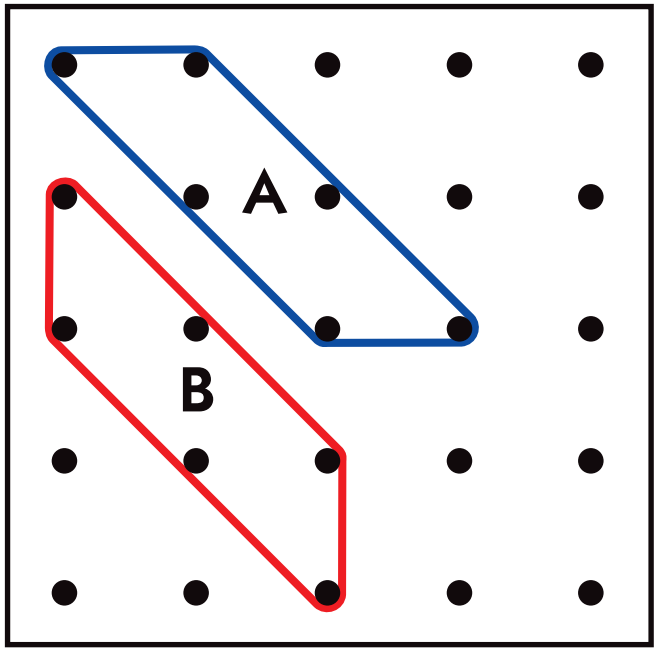
April Congruent Shapes Calendar Markers Sheet 5 of 16



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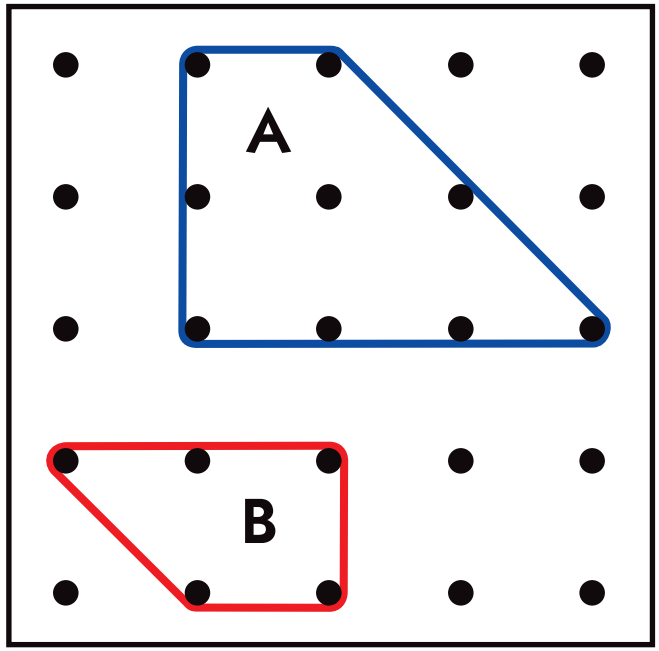

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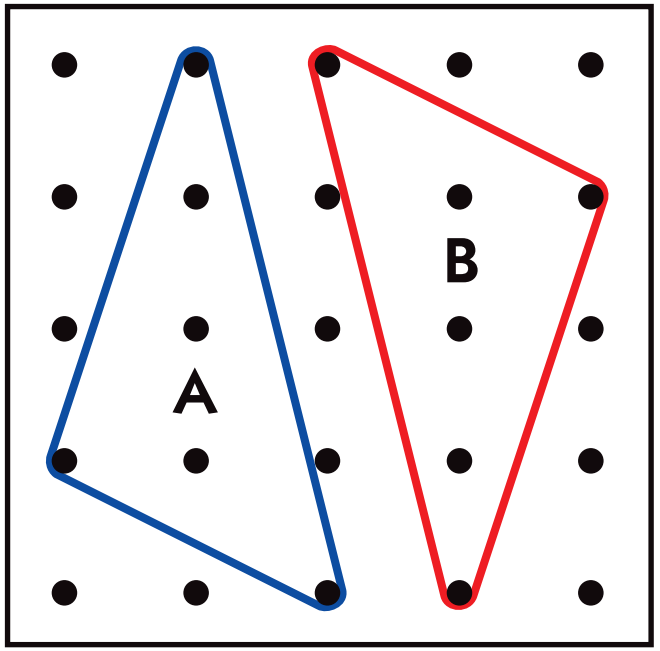

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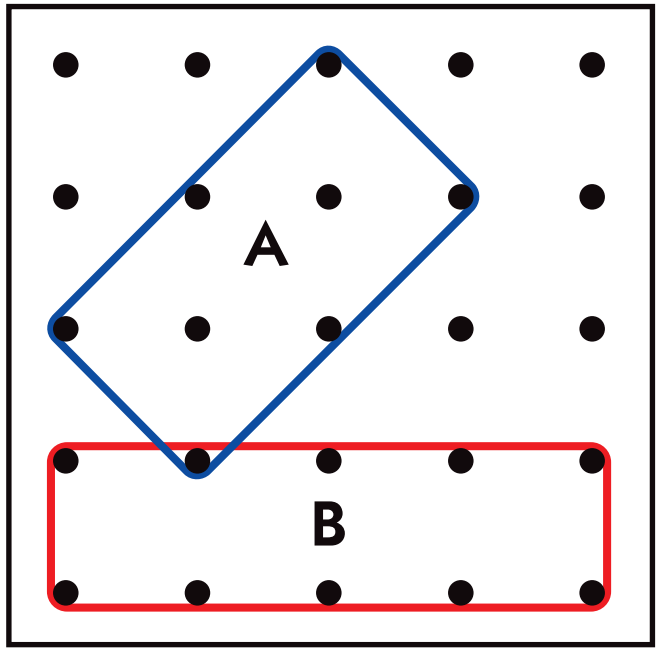

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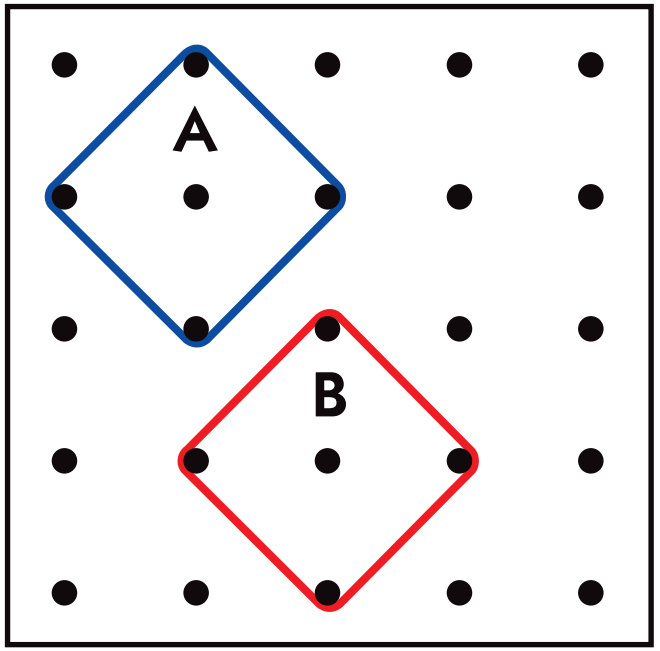
April Congruent Shapes Calendar Markers Sheet 7 of 16



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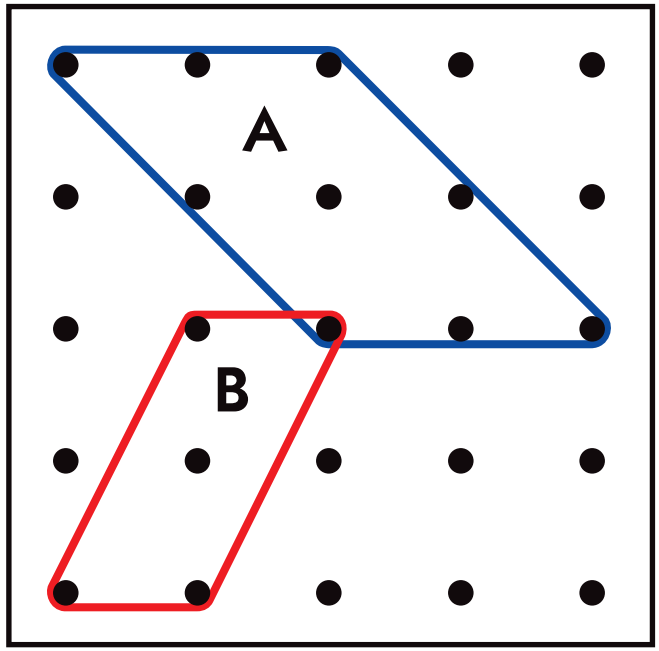

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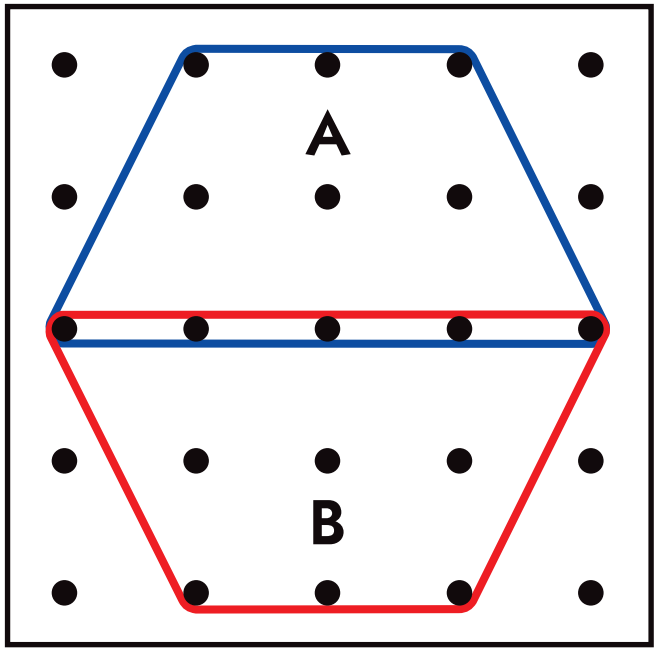
April Congruent Shapes Calendar Markers Sheet 8 of 16



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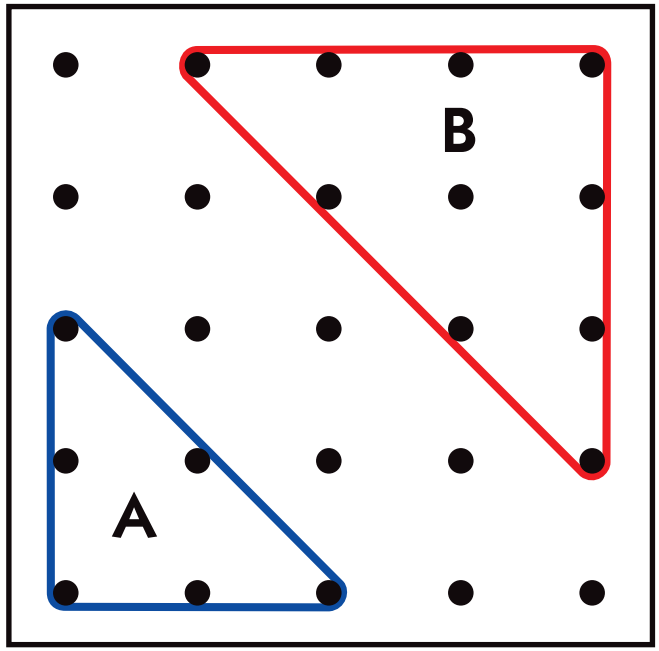

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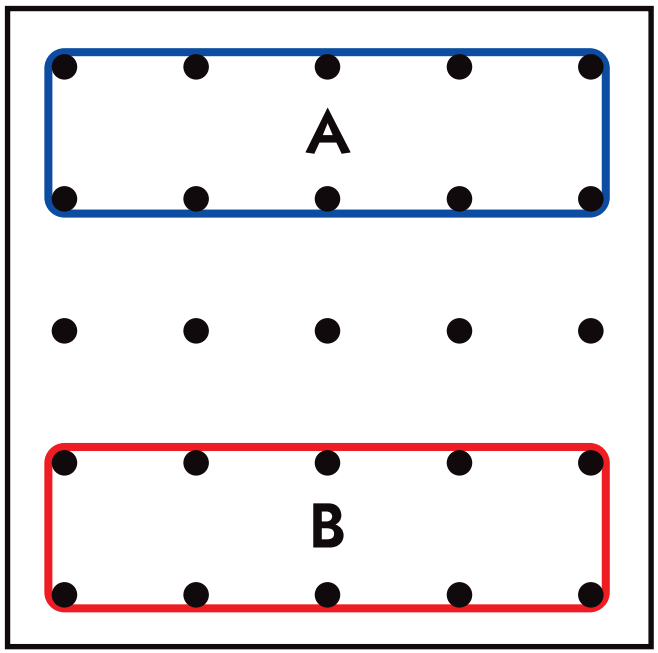
April Congruent Shapes Calendar Markers Sheet 9 of 16



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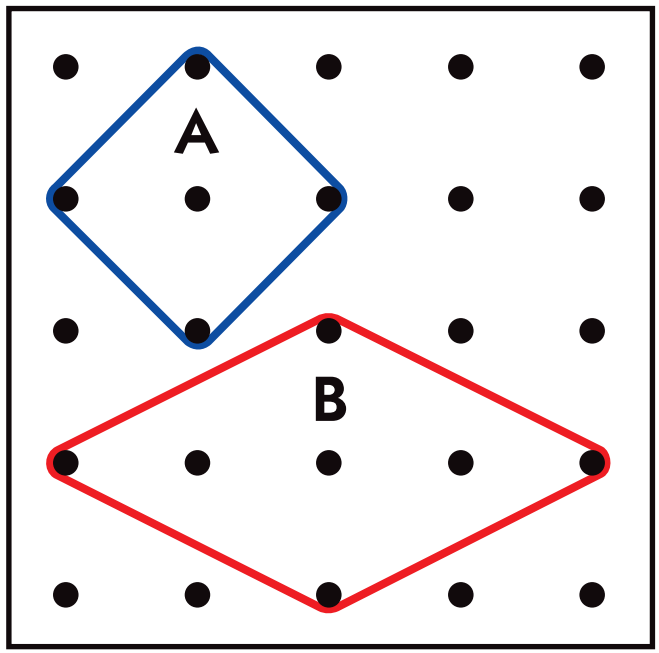

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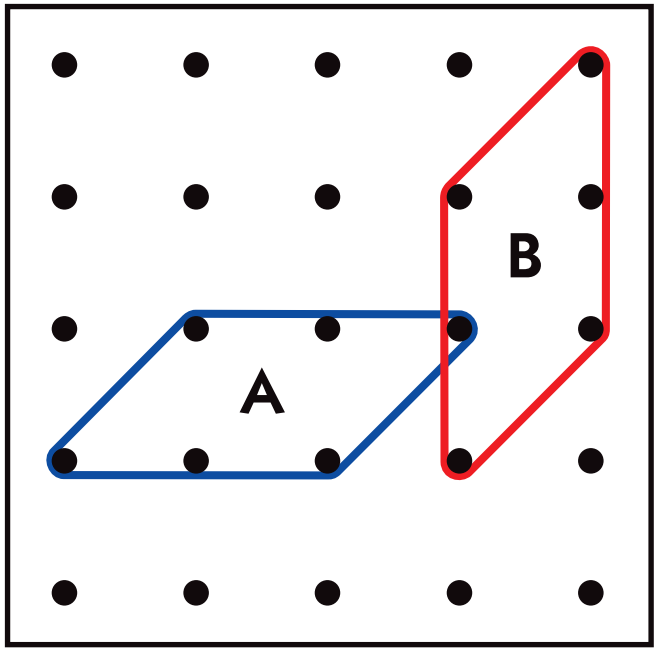
April Congruent Shapes Calendar Markers Sheet 10 of 16



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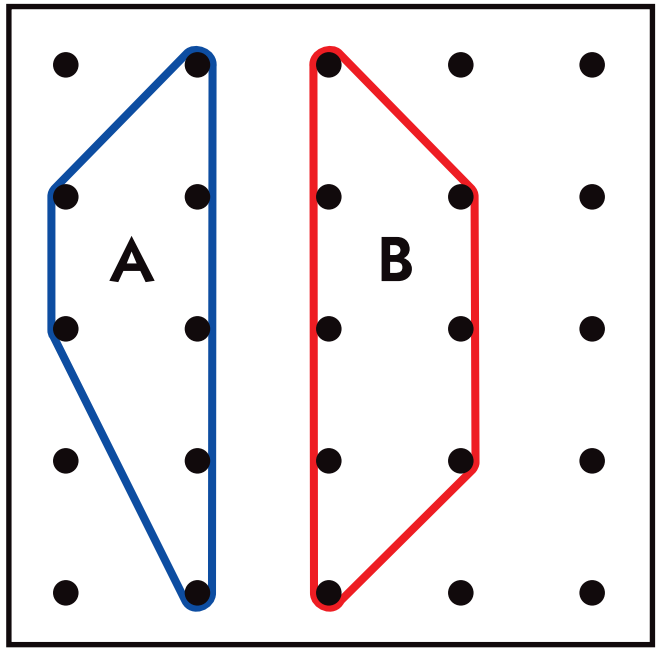

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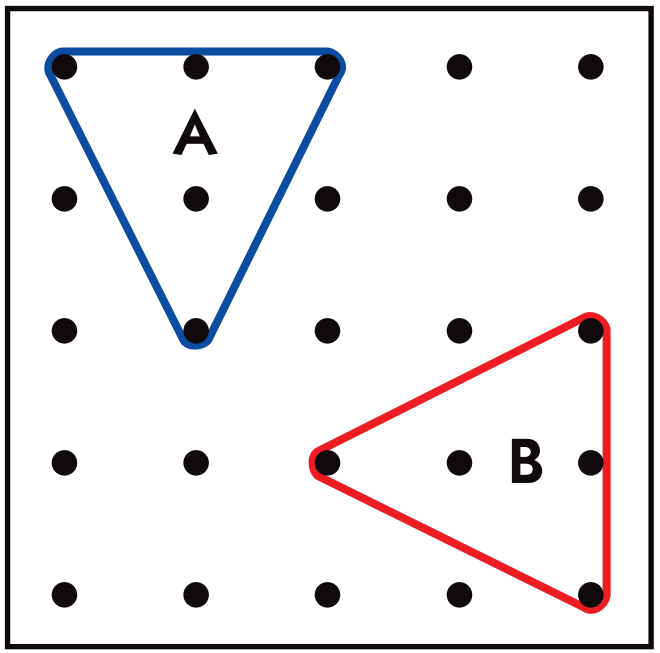
April Congruent Shapes Calendar Markers Sheet 11 of 16



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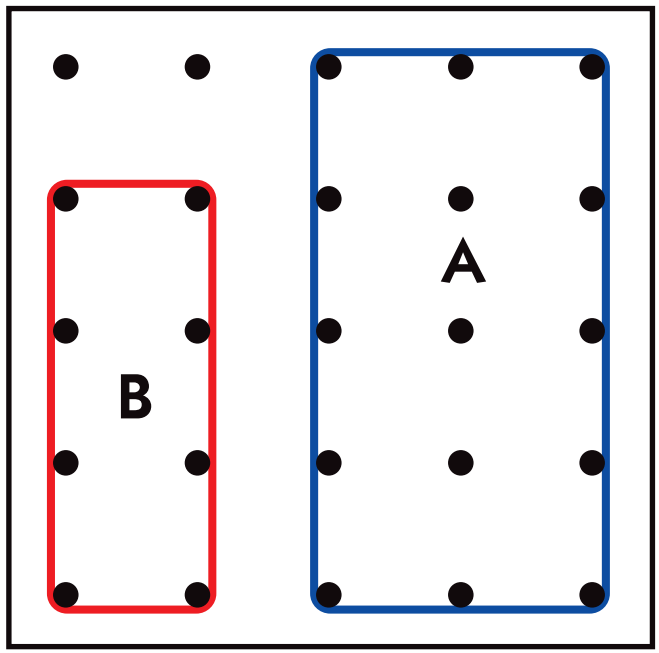

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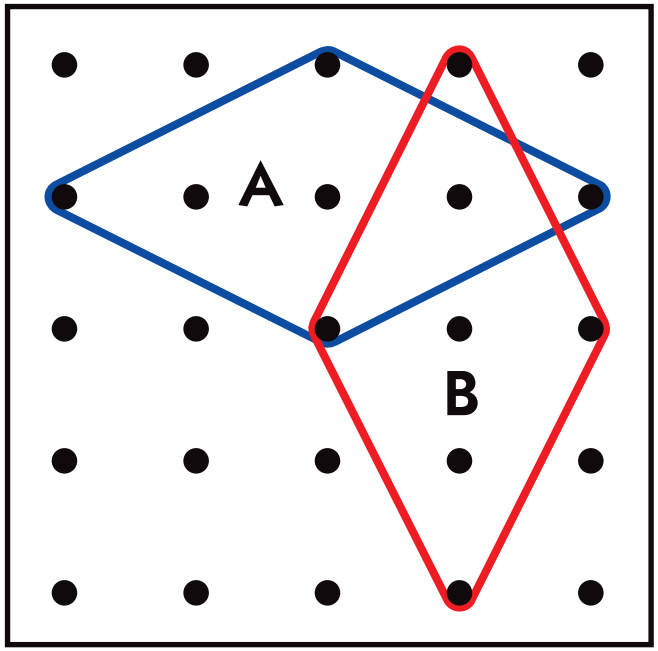
April Congruent Shapes Calendar Markers Sheet 12 of 16



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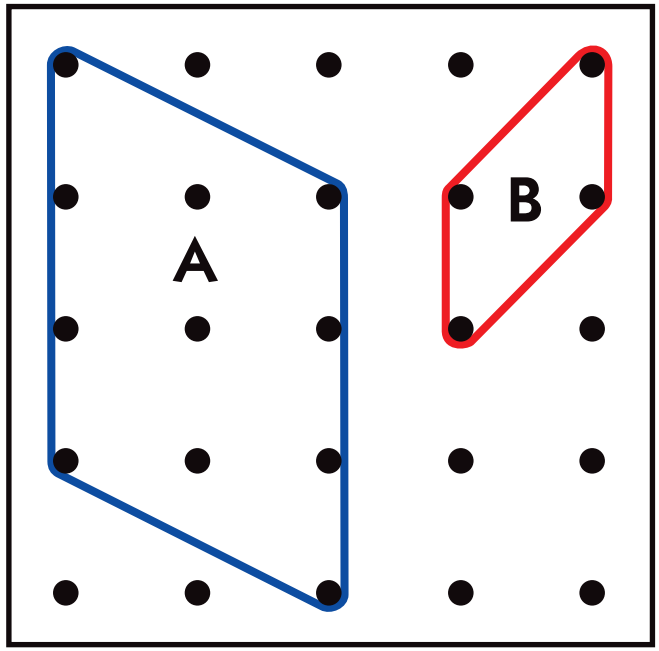

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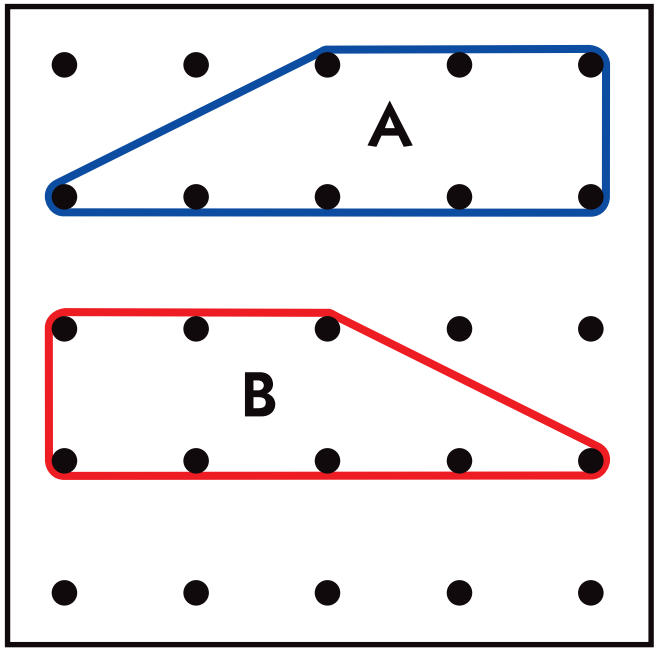
April Congruent Shapes Calendar Markers Sheet 13 of 16



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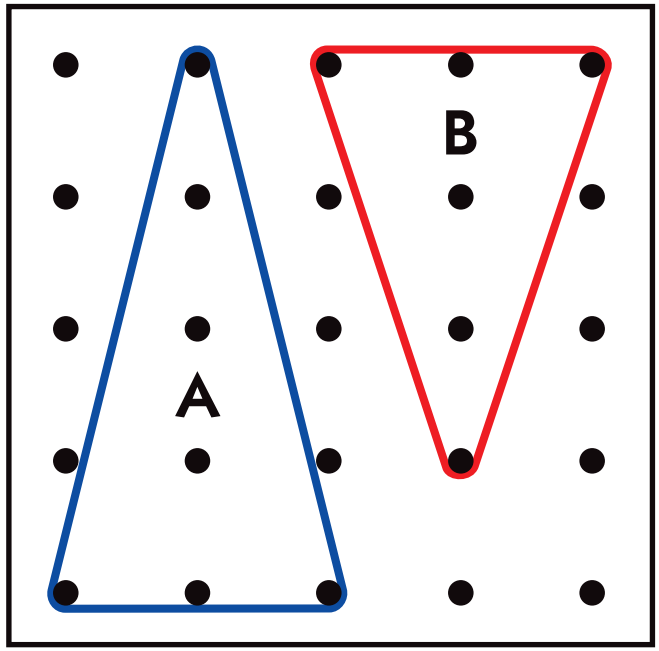

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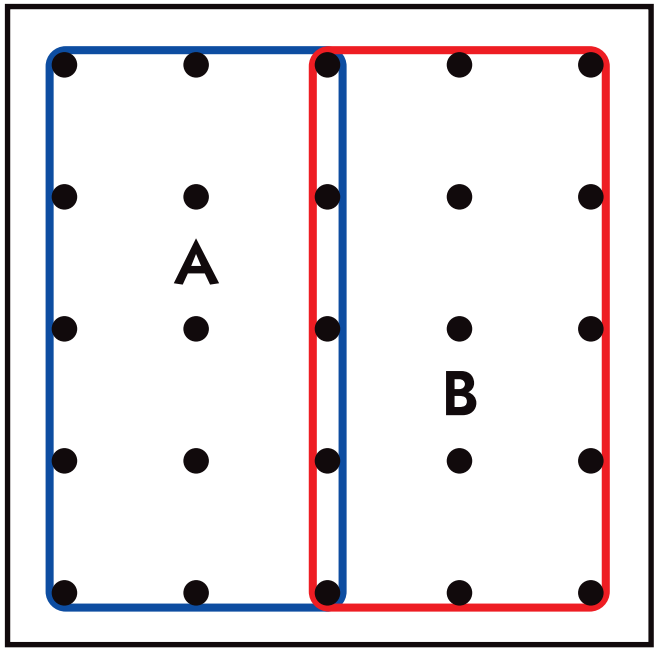
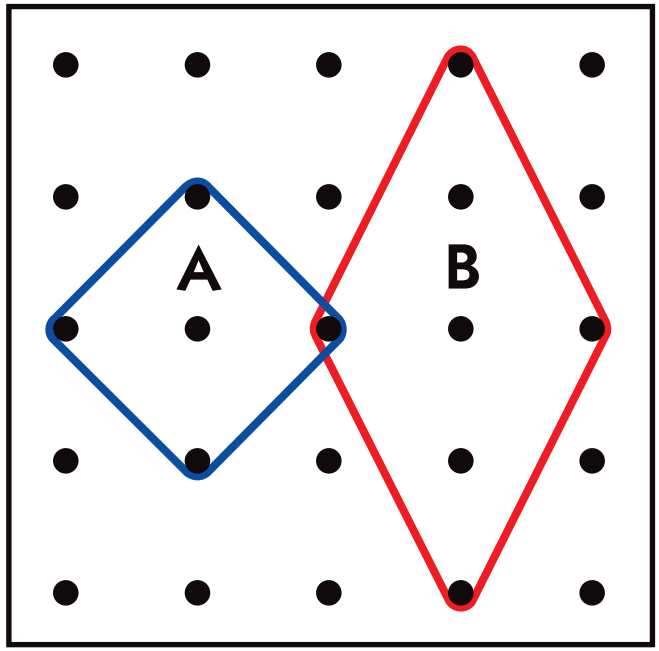
Print 1 copy of the calendar marker sheets in color, single-sided, on white cardstock. Cut the calendar markers apart and laminate if desired.

April Congruent Shapes Calendar Markers Sheet 14 of 16



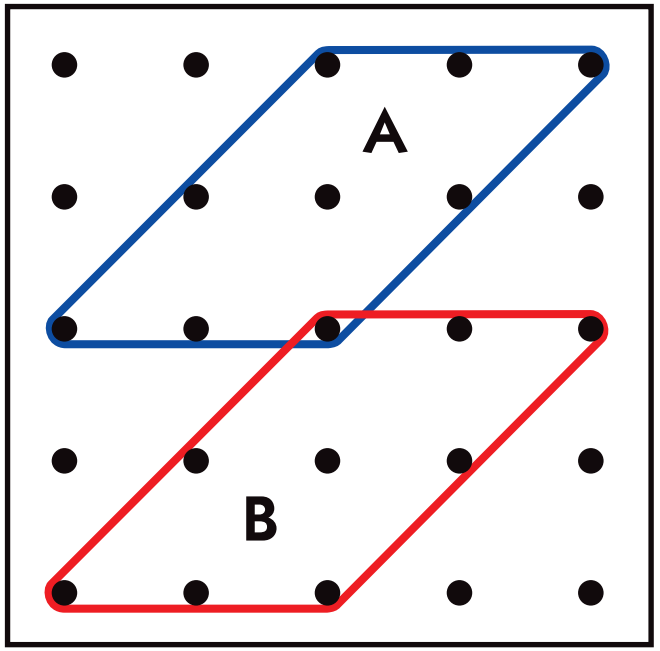
27



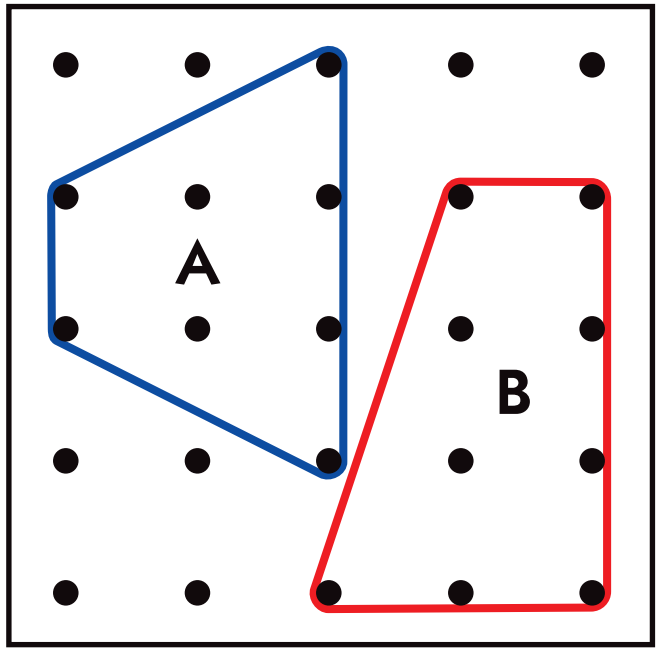
28

Print 1 copy of the calendar marker sheets in color, single-sided, on white cardstock. Cut the calendar markers apart and laminate if desired.

April Congruent Shapes Calendar Markers Sheet 15 of 16



29



30

Print 1 copy of the calendar marker sheets in color, single-sided, on white cardstock. Cut the calendar markers apart and laminate if desired.

April Congruent Shapes Calendar Markers Sheet 16 of 16