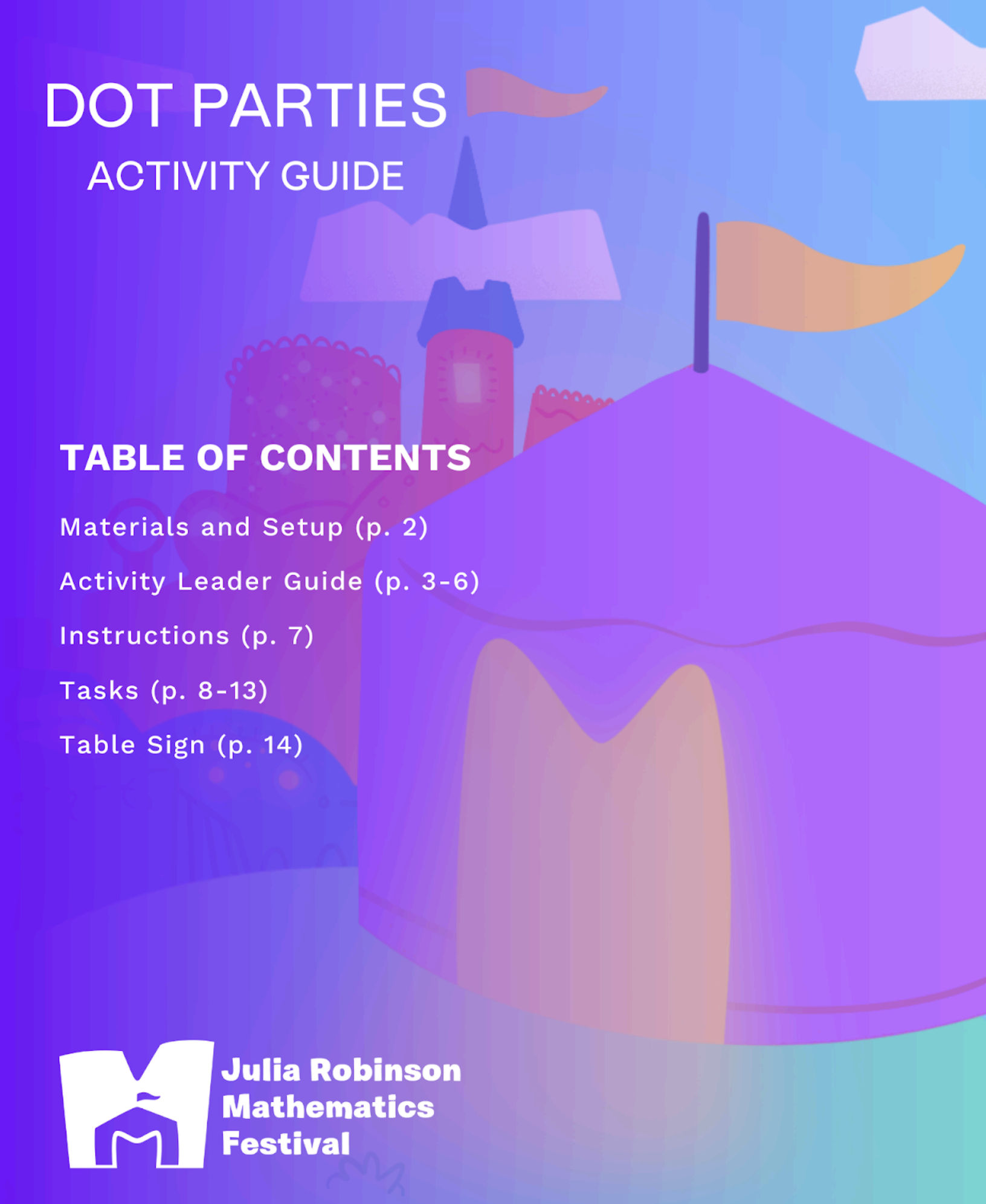
DOT PARTIES

ACTIVITY GUIDE



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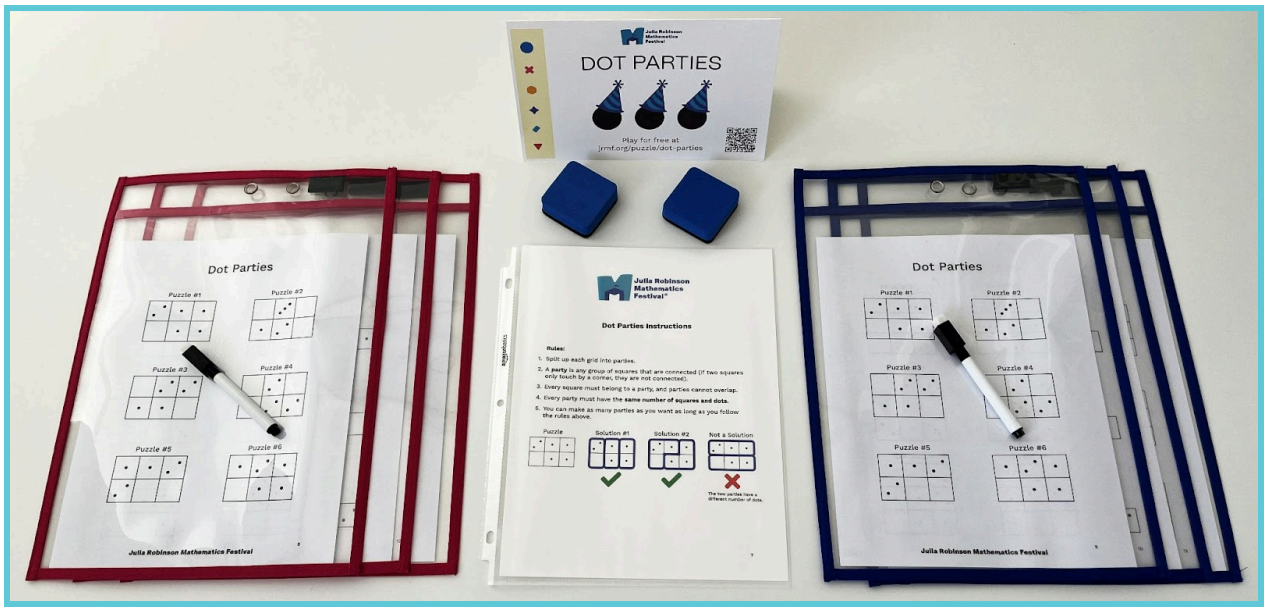
Julia Robinson Mathematics Festival

Materials and Setup

Per table (assuming 5 students per table), you will need:

Per Table	Material Preparation	
3 copies of Instructions	1 page each	p. 6
5 copies of Tasks	6 pages each in dry erase sleeves *can be printed double-sided*	p. 7-12
1 copy of Table Sign	1 page *print on cardstock for sturdiness*	p. 13
15 dry erase plastic sleeves		
5 dry erase markers		
5 dry erase marker erasers		

Per Table	Purchasing Materials		
dry erase combo	30 piece set for $22.53		Set comes with 30 plastic sleeves, 30 markers, and 4 erasers.
dry erase markers	pack of 72 for 9.99		If you need just the markers.
3 plastic sheet protectors	pack of 100 for $11.49	pack of 500 for $26.99	These are recommended in order to protect the instructions.



Objective

Split up each grid into parties (groups of connected squares).

Rules:
1. Every square must belong to a party, and parties cannot overlap.
2. Every party must have the same number of squares and dots.
3. You can make as many parties as you want as long as you follow the rules above.

Materials

Each Dot Parties table should be prepped for 5 stations.
Each station needs:
1. Dot Parties instructions.
2. Dot Parties tasks in dry erase sleeves.
3. 1 dry erase marker and eraser.

How to Play

We encourage you to explore the activity yourself ahead of time.
You can try our online version here.

Introduce the activity without overexplaining it and without telling what strategies students might want to use. As much as possible, avoid giving away answers. Students should be encouraged to explore, experiment, and learn from their mistakes.

1. Use the first puzzle to demonstrate the rules.
2. Have the student help you solve the second challenge.
3. Have the student explore the next challenges.

Beginner Version
See here for a beginner version to engage younger students or students of any age who:
1. Have strong math anxieties
2. Don't feel confident with math or math puzzles
3. Have learning differences
4. Want a gentler start to the activity

Standards

1. Make sense of problems and persevere in solving them. CCSS.MP1
2. Construct viable arguments and critique the reasoning of others. CCSS.MP3
3. Model with mathematics. CCSS.MP4

4. Look for and make use of structure. CCSS.MP7

Asking Good Questions

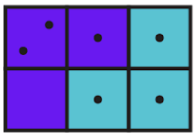
1. Ask questions about confidence.
    a. When a student asks you “Is this right?”, instead of saying “yes” or “no” right away, ask them how confident they are in their answer. Here are some examples:
        i. “Maybe. What do you think? How confident are you?”
        ii. “On a scale of 1-5, how confident are you in your answer?”
    b. If a student is not confident in their answer, follow up by asking “What would help you feel more confident in your answer?” or “Why do you not feel confident?” This helps you determine how best to help the student through their explorations.

2. Ask students about choices.
    a. When a student is stuck or shows you a wrong answer, instead of jumping in and showing the student the correct answer, start by asking about the choices that the student made along the way. Here are some suggested steps to follow:
        i. Start from the beginning.
        ii. Ask students to show you what they’ve tried so far.
        iii. When the student gets to a point where they have different choices, ask the student “What other choices can you make here?”
        iv. Have the student make a different choice and try to solve the puzzle. This helps the student see that they have the power to make different choices during an activity, and they’ll start to do this on their own in the future.
        v. If you’re familiar with the puzzle or a particular solution, stop the student only when a different choice will help them get to the solution. This will help them feel successful faster without you giving away too much of the answer.

3. Ask students about strategies.
    a. If a student is getting into the activity and has been doing it for a while, ask the student if there are any strategies they’ve come up with to help them solve the puzzle or win the game.
    b. Follow up by asking if they think their strategies will work for all puzzles and/or larger puzzles, more complex puzzles, etc. Have the student explore more complex puzzles to test out their strategies.
    c. This is a great way to encourage a student to dive deeper into an activity and to start looking for patterns, structure, and proofs.

Answers

Puzzle #1



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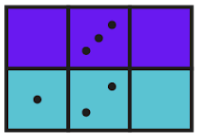

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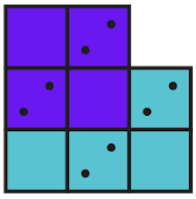

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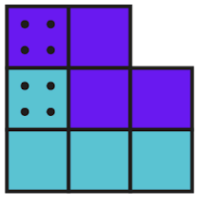

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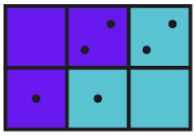

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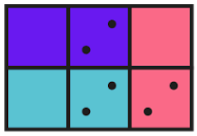

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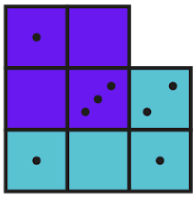

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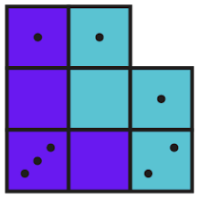

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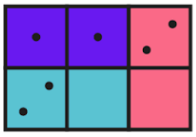

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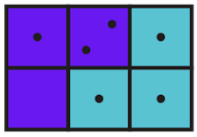

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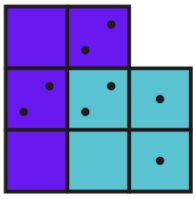

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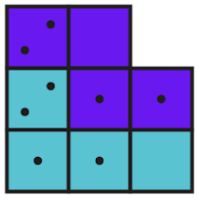

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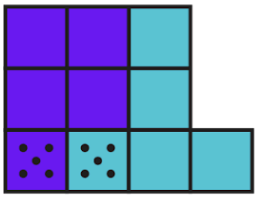

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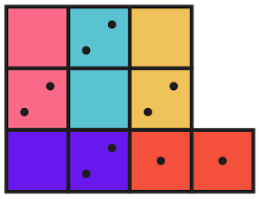

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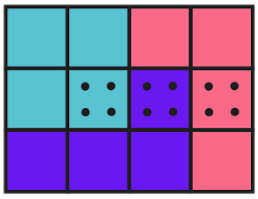

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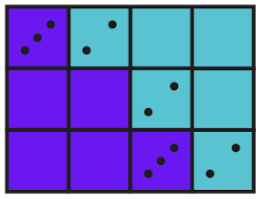

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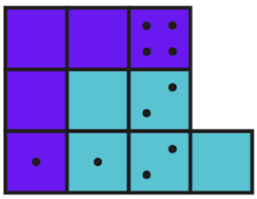

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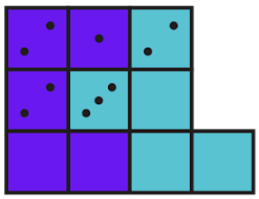

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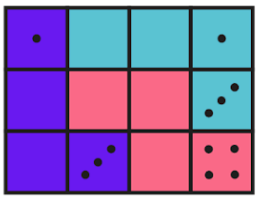

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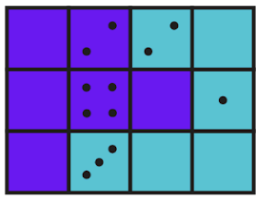

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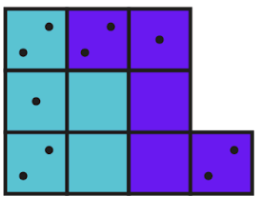

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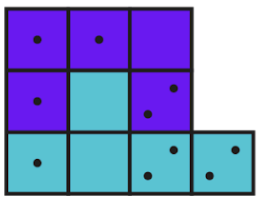

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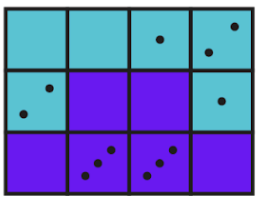

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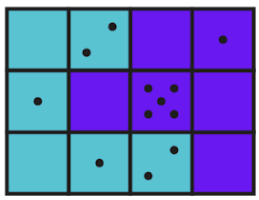

Answers

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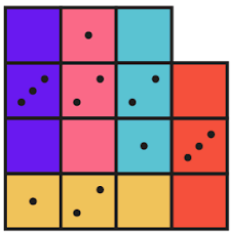

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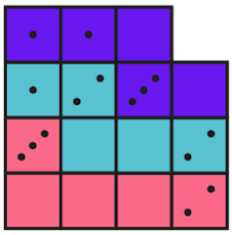

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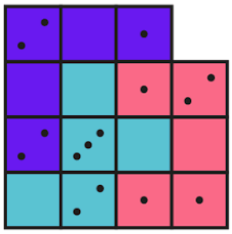

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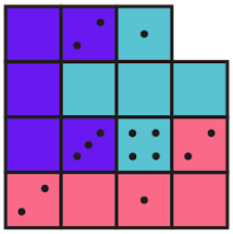

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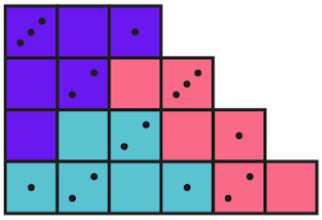

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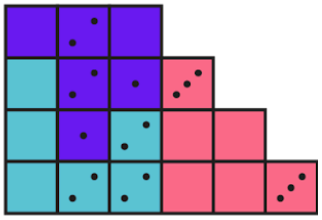

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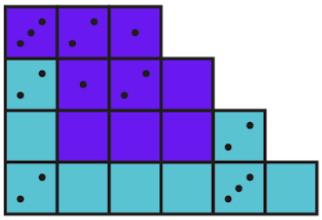

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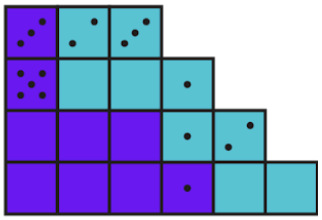

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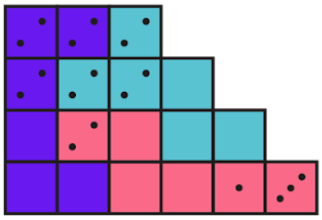

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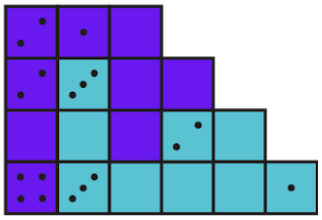
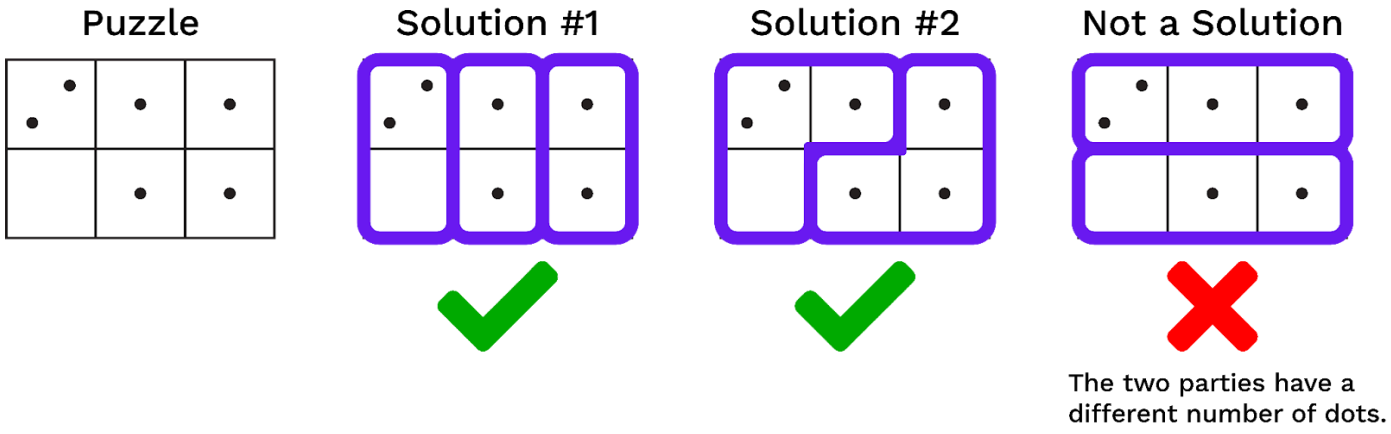


Julia Robinson Mathematics Festival®

Dot Parties Instructions

Rules:

1. Split up each grid into parties.
2. A **party** is any group of squares that are connected (if two squares only touch by a corner, they are not connected).
3. Every square must belong to a party, and parties cannot overlap.
4. Every party must have the **same number of squares and dots**.
5. You can make as many parties as you want as long as you follow the rules above.



Dot Parties

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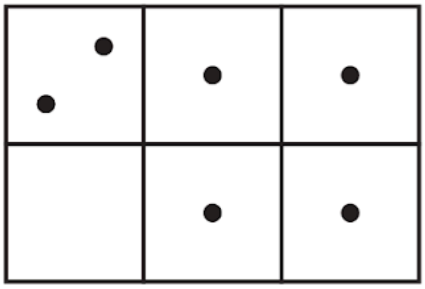

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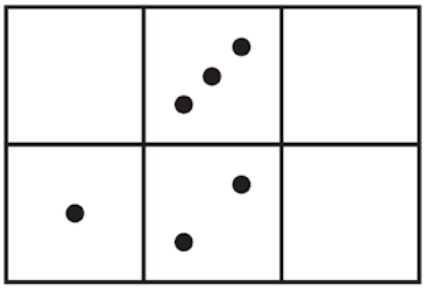

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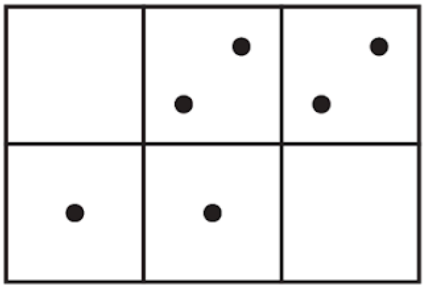

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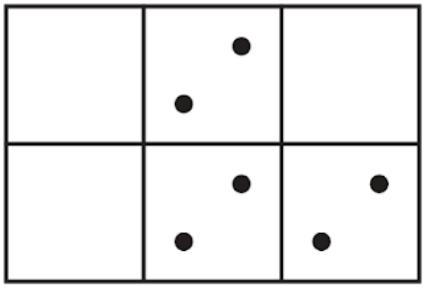

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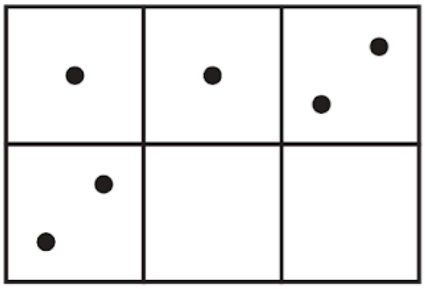

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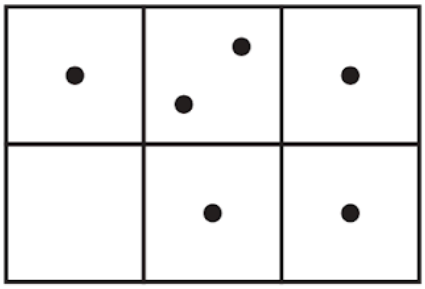
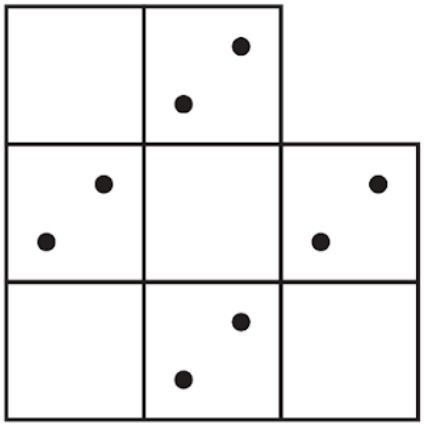


Dot Parties

Puzzle #7



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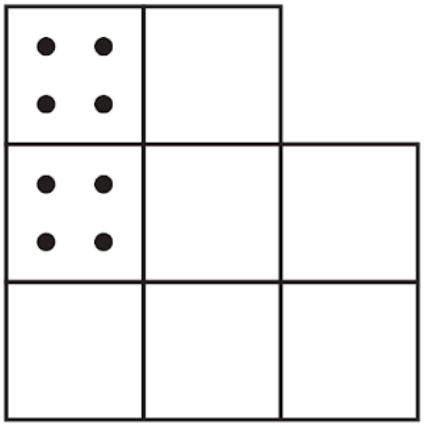

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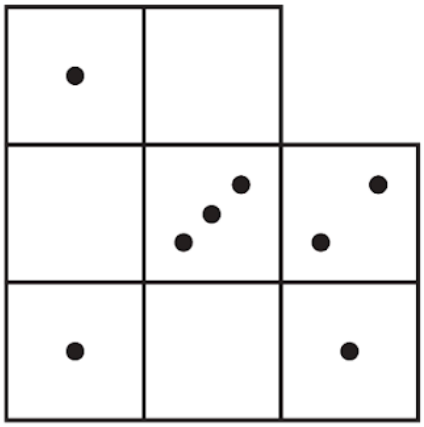

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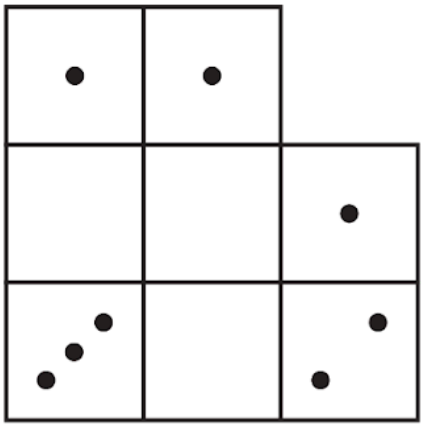

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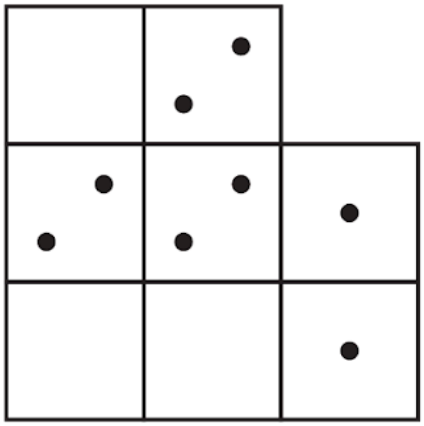

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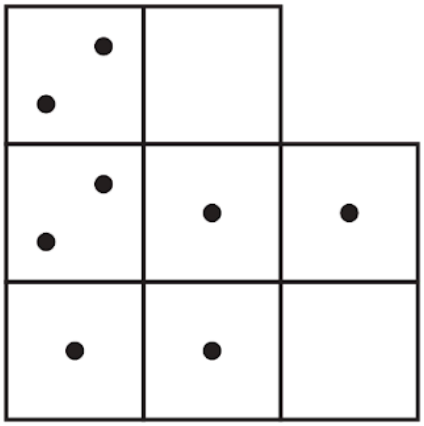
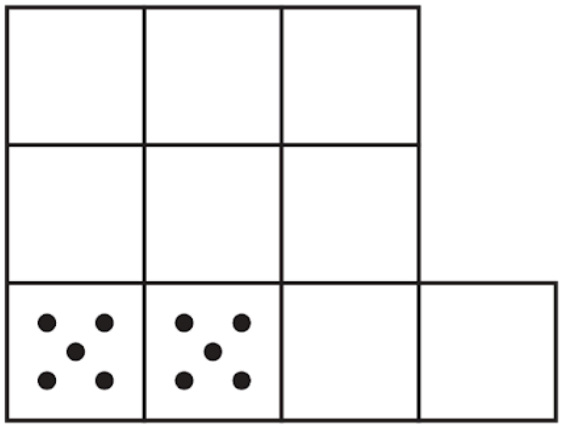


Dot Parties

Puzzle #13



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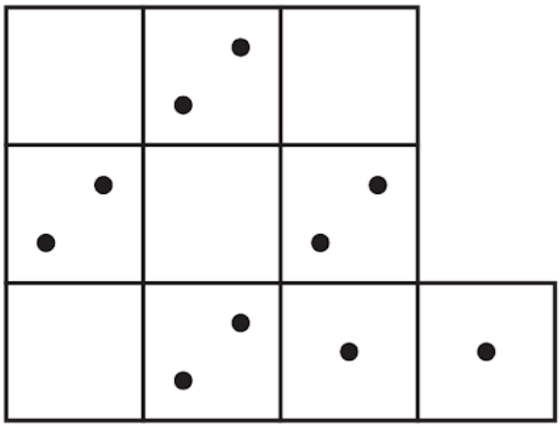

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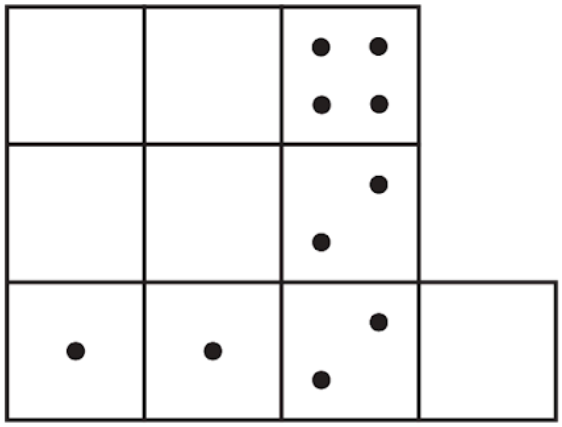

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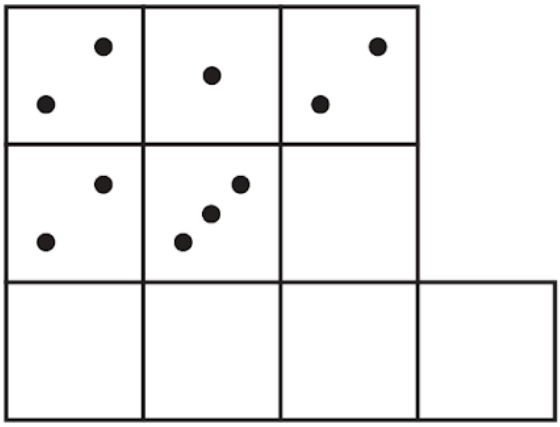
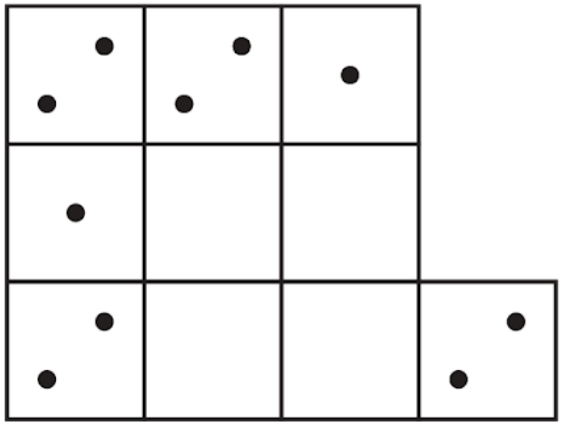
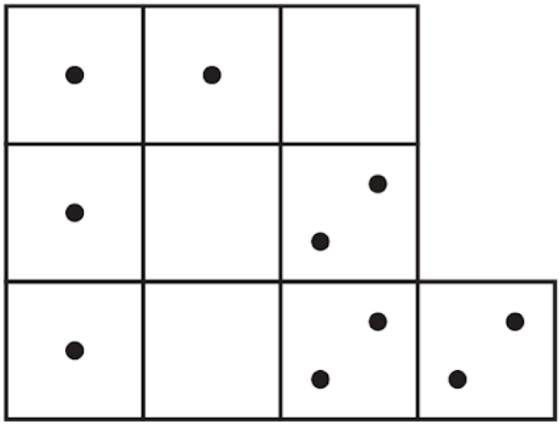


Puzzle #17

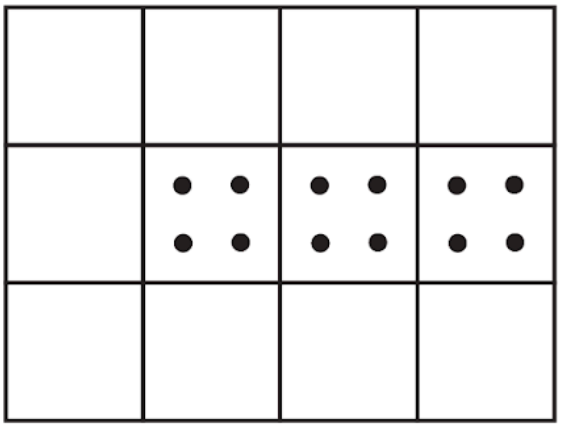


Puzzle #18

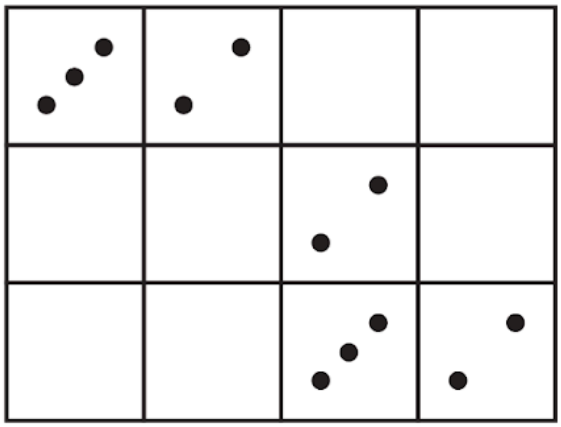


Dot Parties

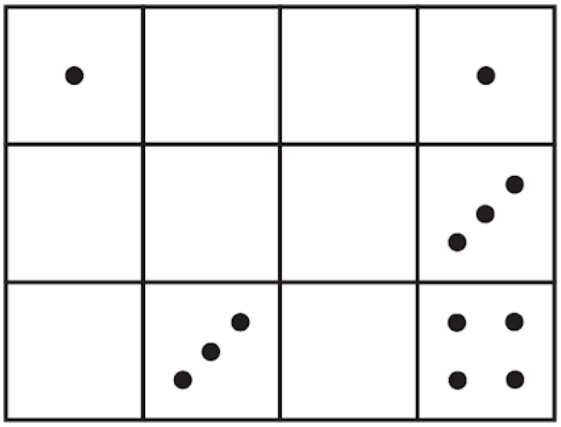
Puzzle #19



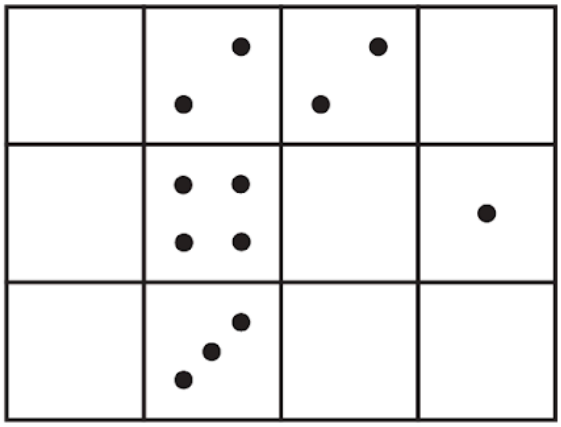
Puzzle #20



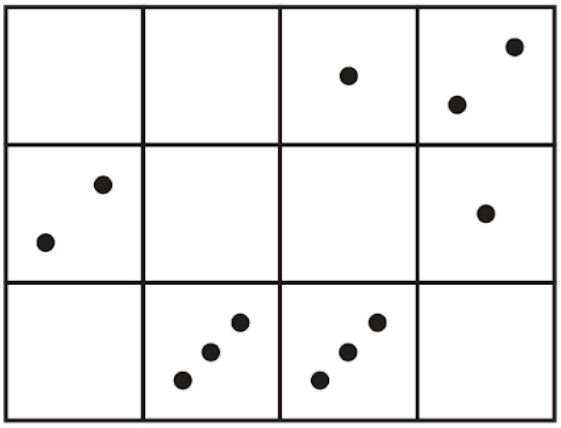
Puzzle #21



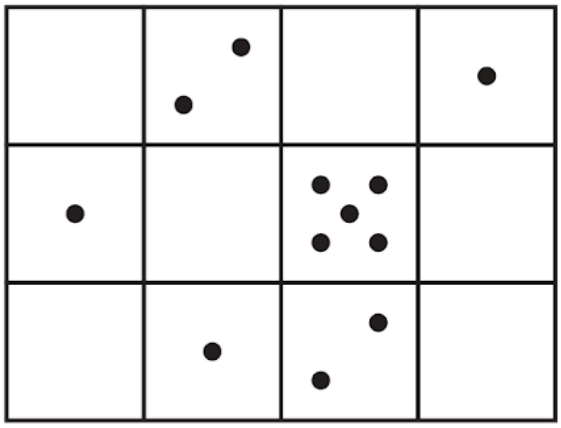
Puzzle #22



Puzzle #23

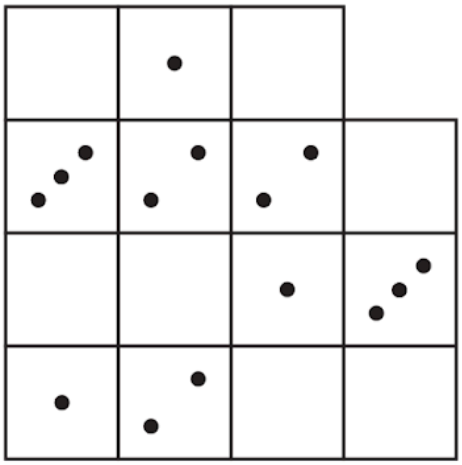


Puzzle #24

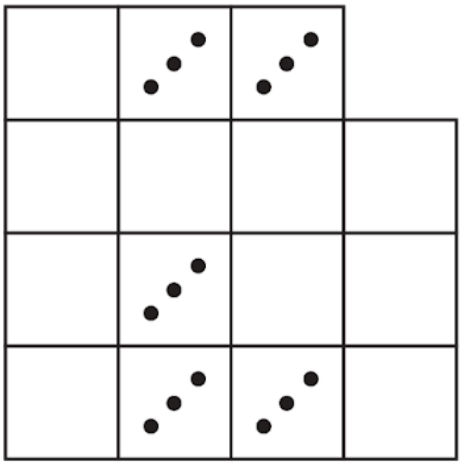


Dot Parties

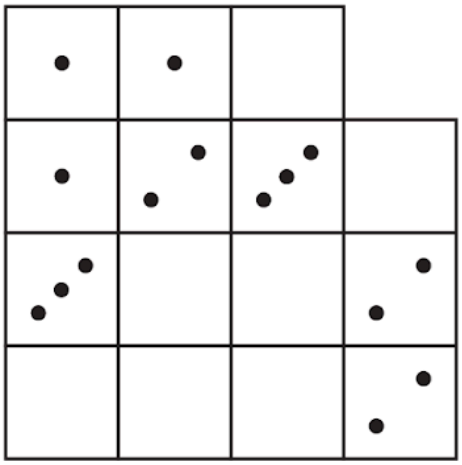
Puzzle #25



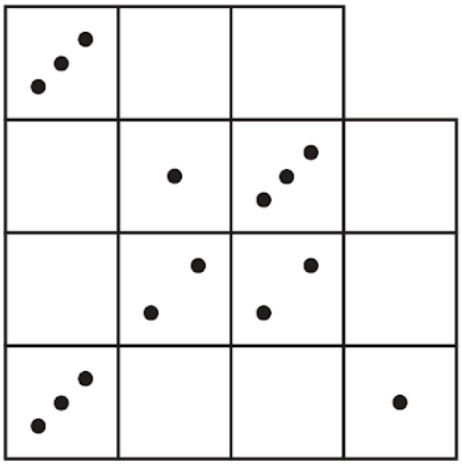
Puzzle #26



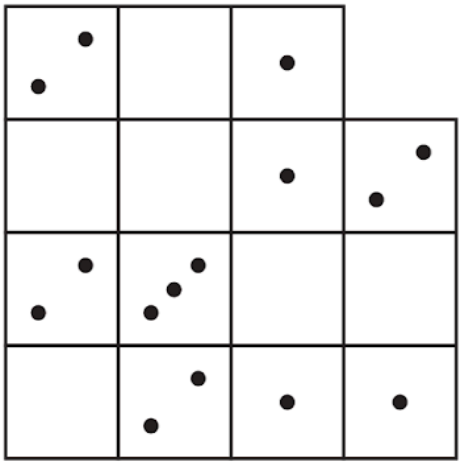
Puzzle #27



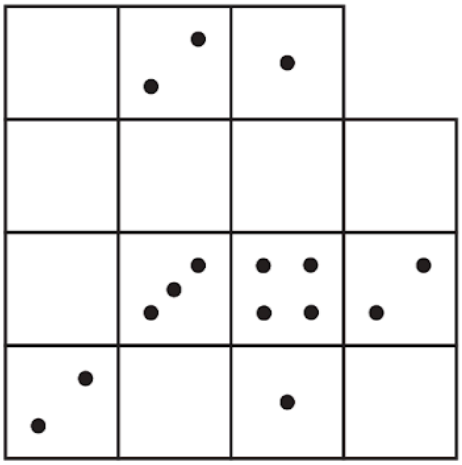
Puzzle #28



Puzzle #29

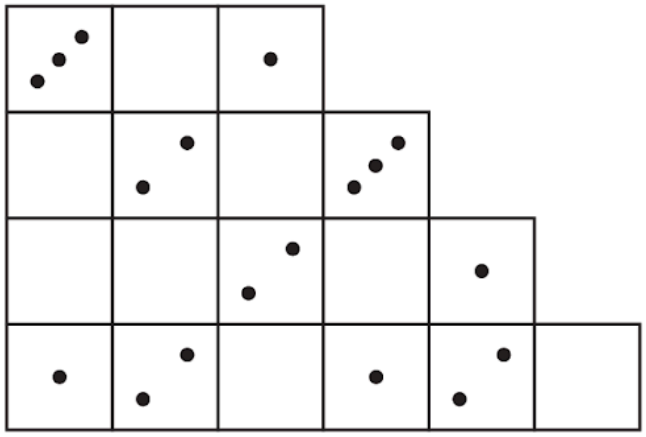


Puzzle #30

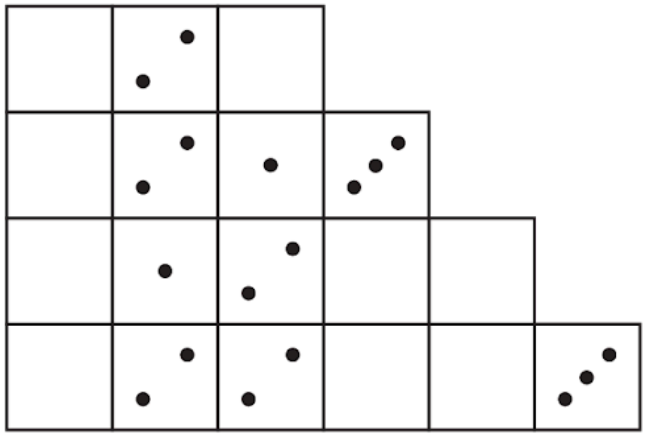


Dot Parties

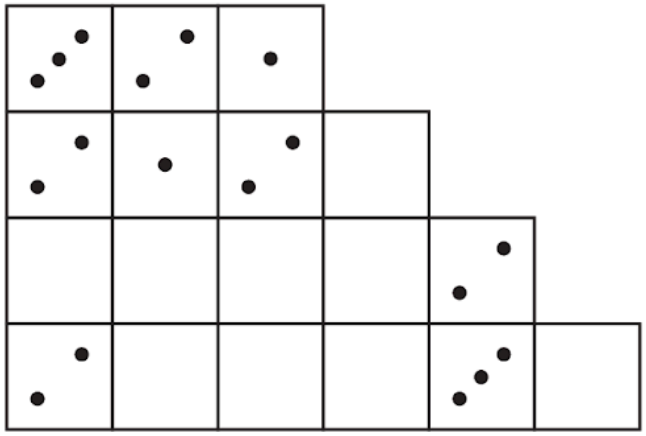
Puzzle #31



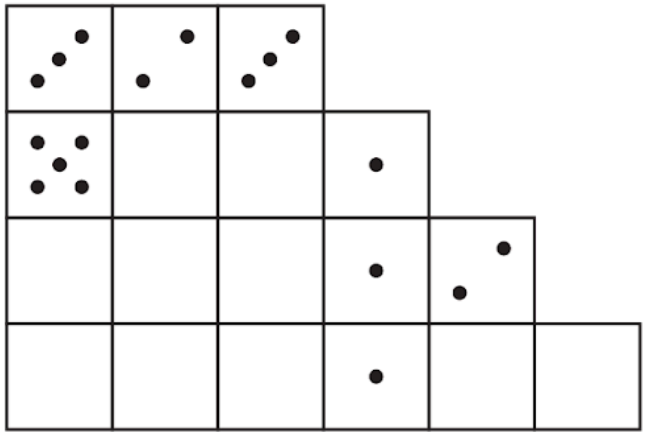
Puzzle #32



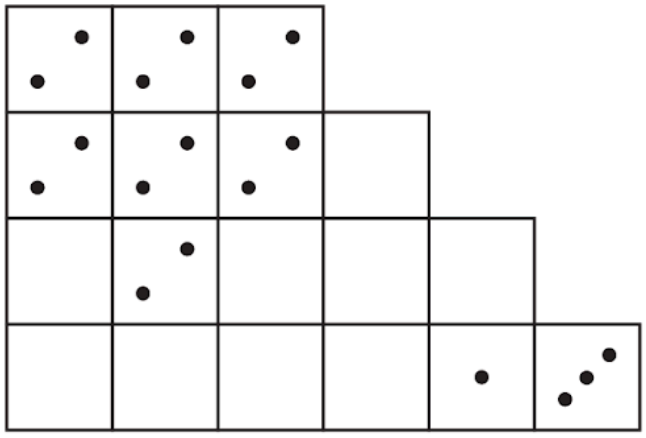
Puzzle #33



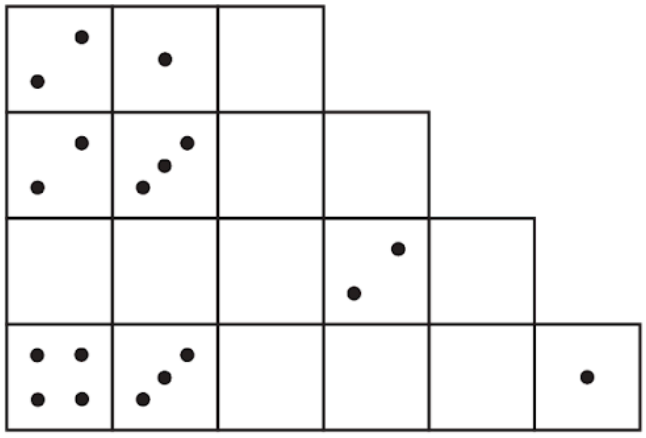
Puzzle #34



Puzzle #35



Puzzle #36



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