

52 MATH JOURNAL PROMPTS

Task Cards Book #5



DENISE GASKINS

Author of Let's Play Math: How Families Can Learn Math Together and Enjoy It

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Introduction and Tips

“This is the wonderful thing about just thinking and playing with half-formed thoughts: often exciting ideas will flash into your brain when you least expect them.”

—JAMES TANTON

The point of math journaling is to help children explore the world of math in a new way. To enjoy playing with ideas. To value curiosity and creative thinking. And to fight for true understanding, doing whatever it takes to help math make sense.

In a journal, children examine their own concepts about numbers, shapes, and patterns through drawing or writing in response to a question. Journaling teaches them to see with mathematical eyes—not just to remember what we adults tell them, but to create their own math.

Children come to realize that learning is more than memorizing facts and procedures, and they develop a richer mathematical mindset. They begin to see connections and make sense of math concepts. They grow confident in their ability to think through new ideas.

Gather Your Supplies

There is no “right” way to do math journaling. Students may use any bound notebook or loose paper, lined or unlined, or graph paper of any type you have on hand. For written prompts, some students may prefer typing on the computer.

Personally, I love dot grid pages for journaling because I can start a line anywhere on the page, and the dots serve as anchors for drawing shapes or

patterns. My favorite paper has a dotted grid spaced at $\frac{1}{4}$ inch or 0.5 cm. Young children may want wider spacing: $\frac{1}{2}$ inch or 1 cm. Triangle dot paper (isometric grid) is also fun, because it encourages writing at different angles.

The [Incompetech website](#) is a great place to download graph paper of all varieties.

If your students are using a bound journal, you may want them to draw the geometry and math art prompts on blank paper. They can use the journaling page to record what math they see in their design and how they thought about creating it.

In particular, geometric constructions made with a compass and straight-edge (or a ruler) are much easier to draw on a loose sheet of plain paper. For best results, use masking tape to hold the paper in place so it doesn’t shift under the compass.

In addition to your journaling paper, you will find the following supplies useful on your mathematical adventure:

- pencils, both plain and colored
- colorful gel pens
- a ruler for making straight lines
- a drafting compass for drawing circles and comparing distances
- other drafting tools, like plastic triangles or a circle template
- dice for playing games
- a deck of ordinary playing cards, poker or bridge style

Create Your Own Math

When students create their own math, they forge a personal connection to mathematical concepts and relationships. And it's fun!

Children might make up a math game, write a story or poem, draw a comic, or pose a problem. Create math art, think up a challenging question, or write a puzzle. Since earlier chapters focused on writing and math art, most of these prompts involve creating puzzles or problems.

The "Story Problem Challenge" is one of my favorite math club activities. My students invent their own word problems in any style they like. They don't have to know how to solve the problems they create. We read the stories aloud, and everyone works together to find the solutions.

For puzzles where the child already knows the answers (for example, Two Truths and a Lie), let them trade with a friend. Can they each solve the other's puzzle? Can they stump each other? Or save the child's work and let them come back to it another day, after they've forgotten the answers.

And when students create something they're proud of, let them share it with the world. Visit the Student Math Makers Gallery at tabletopacademy.net/math-makers to learn how your students can submit their own math creations.

- 253. Business Tycoon:** If you could run any kind of business you liked, what would it be? Would you have a shop to sell items? Or would it be a service business where people hire you to do certain tasks? Or both?

Write a story for your business. What math questions might you ask about your story?

- 254. Cutting a Clock:** Using the face of an analog clock as a guide, how many different circle fractions can you draw? For example: a line from the 12 to the 6 splits the clock in half. What other fractions can you find? How many minutes are there in each fraction slice?

Can you show how to use a clock to add or subtract fractions? Or can you convert the clock-minutes into angle degrees? Or radians? (There are 360° or 2π radians in a full circle.) What other questions can you ask?

- 255. Math Riddles:** Choose a secret number the other players will try to guess. Write a "What Number Am I?" riddle. For example, "I am odd and prime. I'm a two-digit number less than 30. The sum of my digits is 4. What number am I?"

Give at least three clues for your mystery number. No other number should match all the clues. For more sample riddles, go to solveme.edc.org/whoami and click "Play."

- 256. Mental Mathstorm:** Write a tough calculation in the center of your page. Draw several branches outward. For each branch, write a calculation with easier numbers. For example, $137 + 359$ might have a branch with “ $130 + 350 + 7 + 9$ ” and another with “ $130 + 7 + 360 - 1$.”

Can you fill your whole page with different ways to say the calculation? Which of the variations is the easiest to figure out mentally?

- 257. Invent a Game 2:** Can you make a variation of the classic take-away game Nim? What will players take away (or add)? Will they play on a gameboard, or with pieces in a pile? How do you win (or lose) the game?

Try your game with a friend, and tinker with the rules until you're satisfied.

[In Nim, players begin with one or more piles of stones. They remove the stones according to a rule like, “On your turn, take 1–3 stones.” Traditionally, the player who takes the last stone loses.]

- 258. Donkey Math:** One donkey said to the other, “If I gave you one sack from my load, we'd have the same amount. But if you gave me one sack, I'd be carrying twice as much as you.” What questions can you ask?

Can you make up a donkey math puzzle?

- 259. Four Triangles:** Draw a large square. Divide it in half either vertically or horizontally. Then divide those halves along their diagonals to make four right triangles. How long are the sides of each triangle compared to the original square?

How many other different four-sided shapes (quadrilaterals) can you make with the same set of four triangles? What other interesting shapes can you make?

You may want to cut triangles from construction paper to manipulate, then sketch the shapes you find in your journal.

- 260. Vector Algebra:** Use graph paper, dotted or lined. “R” means move one space to the right. What do you think “-R” means? “U” means move one space up the page. What kind of move is “ $5R - 3U$ ”?

Draw a treasure map, with plenty of obstacles. Use vector algebra to describe a path to the treasure.

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PREVIEW