



GRADE 5 · GEOMETRY · PRACTICE

CLASSIFYING FIGURES IN A HIERARCHY

Today's goal: I can understand that attributes of a category of figures belong to all subcategories and classify two-dimensional figures in a hierarchy based on properties.



Pick your peppers!

Everyone does Mild & Medium. Then climb as high as you can.



Mild

Tan the Turtle



Medium

Digit the Fox



Spicy

Blaze the Dragon



Extra Spicy

Pi the Owl

WATCH MR DJ SOLVE

Answer both ways: is every square a rhombus? Is every rhombus a square?

- 1 Rhombus requires: 4 sides, 2 pairs of parallel sides, all sides equal. A square has all three — so yes.
- 2 Square additionally requires 4 right angles, which a rhombus need not have.
- 3 So a rhombus leaning over, with no right angles, is a rhombus and not a square.

Answer: yes; no



REMEMBER

A category is a set of requirements. Every square is a rectangle; some rectangles are squares. Attributes are inherited downwards. Orientation is never a property.



MILD

Tan the Turtle: Slow and steady. Warm up!

- 1 Answer yes or no, with the requirements you checked: is every square a rectangle? Is every rectangle a square?

Answer



OOPS ALERT

Careful on #1! The slip Mr DJ sees most: Answered no to the first, on the grounds that they are “different shapes”. Different NAMES; the requirements are what decide, and a square meets all of the rectangle's.



🔊 🔊 **MEDIUM**

Digit the Fox: Stretch your brain.

- 2 Is every rectangle a rhombus? Is every rhombus a rectangle? Draw an example for each answer.

Answer

- 3 Name two properties a square inherits, and say which category each comes from.

Answer



🔥 🔥 🔥 **SPICY**

Blaze the Dragon: Bring the heat!

- 4 Which single shape is both a rectangle and a rhombus? Explain using requirements.

Answer

- 5 A square is drawn turned 45° and a child calls it a diamond, not a square. What has gone wrong?

Answer

- 6 A child says “all rectangles are squares”. Disprove it with one drawing.

Answer

- 7 Why does putting shapes in a hierarchy mean there is LESS to remember, not more?

Answer



EXTRA SPICY

Pi the Owl: Big-brain challenge.

- 8 Why is “a square is a rectangle” a better thing to be told the REASON for than to be told as a fact?

Answer



How did this sheet feel?

☐

Easy for me

☐

Just right

☐

Made me think

Stuck? Watch Mr DJ explain it

Step-by-step video lessons on YouTube: [youtube.com/@MathWithMrDJ](https://www.youtube.com/@MathWithMrDJ)

Brain break: daily puzzles

Three new math puzzles every day, free:
puzzles.mathwithmrdj.com