

Place a shape in a category hierarchy

NAME	DATE	SCORE / 10
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- 1** Dev says, "Every square is a parallelogram." Is Dev right, and why?
- ☐ No: a square has four right angles, so it is not a parallelogram
☐ No: a parallelogram must have slanted sides and no right angles
☐ Yes: a square has two pairs of parallel sides ☐ Yes: a square has four sides

- 2** Which statement is false?
- ☐ Every square is a parallelogram. ☐ Every rectangle is a parallelogram.
☐ Every square is a rectangle. ☐ Every quadrilateral is a parallelogram.

- 3** "A parallelogram is a rectangle." Is this always, sometimes or never true?
- ☐ Always true ☐ Sometimes true ☐ Never true

- 4** Which of these names fit every square?

Tick every answer that is true.

- ☐ **A** Quadrilateral
☐ **B** Rhombus
☐ **C** Rectangle
☐ **D** Pentagon
☐ **E** Triangle

- 5** "A rhombus is a parallelogram." Is this always, sometimes or never true? Explain how you know, using the sides and angles.

- 6** Emma says, "Every square is a rectangle." Is Emma right, and why?

- ☐ Yes: a square has four right angles ☐ Yes: a square has four equal sides
☐ No: a square has four equal sides, so it is not a rectangle
☐ No: a rectangle must have two long sides and two short sides

- 7** Which statement is false?

- ☐ Every square is a rectangle. ☐ Every rhombus is a parallelogram.
☐ Every square is a rhombus. ☐ Every rectangle is a rhombus.

- 8** Cleo says, "Every rectangle is a parallelogram." Is Cleo right, and why?

- ☐ Yes: a rectangle has four sides ☐ Yes: a rectangle has two pairs of parallel sides
☐ No: a parallelogram must have slanted sides and no right angles
☐ No: a rectangle has four right angles, so it is not a parallelogram

- 9** Ana says, "Every rhombus is a square." Is Ana right, and why?

- ☐ No: a rhombus does not always have four right angles
☐ No: a rhombus never has four right angles ☐ Yes: a rhombus can have four right angles
☐ Yes: a rhombus has four equal sides, like a square

- 10** Ivy says, "Every square is a rhombus." Is Ivy right, and why?

- ☐ No: a square has four right angles, so it is not a rhombus
☐ No: a rhombus must have slanted sides and no right angles
☐ Yes: a square has four equal sides ☐ Yes: a square has four right angles

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1 Yes: a square has two pairs of parallel sides

3 Sometimes true

6 Yes: a square has four right angles

8 Yes: a rectangle has two pairs of parallel sides

10 Yes: a square has four equal sides

2 Every quadrilateral is a parallelogram.

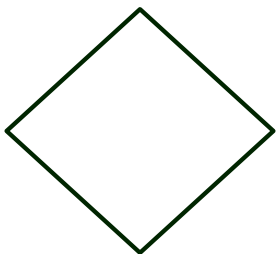
4 A, B, C

Tick exactly these: A: Quadrilateral; B: Rhombus; C: Rectangle. One missed or one extra is wrong.

7 Every rectangle is a rhombus.

9 No: a rhombus does not always have four right angles

5 A written explanation



A model answer: Always true. A parallelogram has two pairs of parallel sides. The opposite sides of every rhombus are parallel, so every rhombus is a parallelogram.

What counts as right: Counts as right if it makes these points: (1) the answer, always true; (2) a parallelogram has two pairs of parallel sides; (3) the opposite sides of every rhombus are parallel. Saying how the shapes look, without the sides or angles that define them, does not count.