

CUT & GLUE SORT

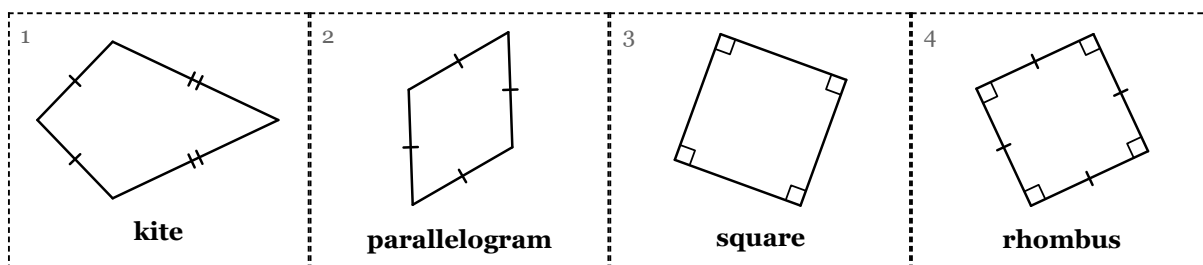


CLASSIFYING QUADRILATERALS

Does the Name Fit the Marks?

Correct, too general, or not proved · seven names

FREE



Cut & Glue Sort — how to run it

25 minutes, including the cutting

1. **Hand out pages 3 and 4**, one of each per student, with scissors and glue. Nothing else is needed.
2. **Say this once:** *“Use only the marks. A name can be true and still not be the most specific name. Every square is a rectangle, but square is the more specific name.”*
3. **Check a sheet in ten seconds:** every row gets four pieces.

Student sheets	pages 3 and 4, one of each per student. Page 3 shows the seven names as small marked drawings, with the marks that prove each one.
Answers	page 5.

What the three rows test. Each piece shows a marked quadrilateral and a name. A square is a special rectangle and a special rhombus. A rectangle and a rhombus are special parallelograms, a rhombus is also a special kite, and a parallelogram is a special trapezoid. So one shape can have several true names. The first row is for the most specific name the marks prove.

The definitions this sheet uses. A trapezoid has at least one pair of parallel sides, so every parallelogram is a trapezoid. A kite has two pairs of congruent sides next to each other, so every rhombus is a kite. Some textbooks use other definitions, so tell the class which ones this sheet uses.

The second row is for names that are true but too general. Many students give the name they know best instead of the most specific one. The pieces here include a rhombus named parallelogram and a rectangle named trapezoid. Both names are true, because a rhombus is a special parallelogram and a rectangle is a special trapezoid.

The last row is for names the marks do not prove. Every piece in it is drawn to look exactly like its name, because many students name what they see. For example, a shape drawn as a square with four right angles marked is named square, but no sides are marked congruent, so only rectangle is proved. Pieces 6 and 8 in the first row are also drawn to look more special than their marks prove: piece 6 looks like a square, and piece 8 looks like a parallelogram. A student who simply trusts the drawing places only six of the twelve pieces correctly.



This is the free lesson this activity came from. The worksheet, the full answers and the lesson plan are on it, at three levels of difficulty.

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Does the name fit the marks?

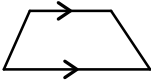
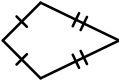
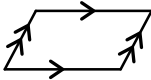
Correct, too general, or not proved

Name _____

Period _____

Date _____

Cut out the twelve pieces on the next page. Each piece shows a quadrilateral with marks, and a name under it. **Decide which row the piece belongs in, and glue it there.**

 quadrilateral Four sides.	 trapezoid At least one pair of parallel sides.	 kite Two pairs of congruent sides next to each other.	 parallelogram Both pairs of opposite sides parallel, or both pairs congruent.	 rectangle Four right angles, or a parallelogram with one right angle.	 rhombus Four congruent sides.	 square Four congruent sides and four right angles.
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A square is a **special** rectangle and a **special** rhombus. A rectangle and a rhombus are **special** parallelograms. A rhombus is also a **special** kite. A parallelogram is a **special** trapezoid.

Use only the marks. Do not trust how the shape looks. A name can be true and still not be the most specific name. For example, every square is also a rectangle.

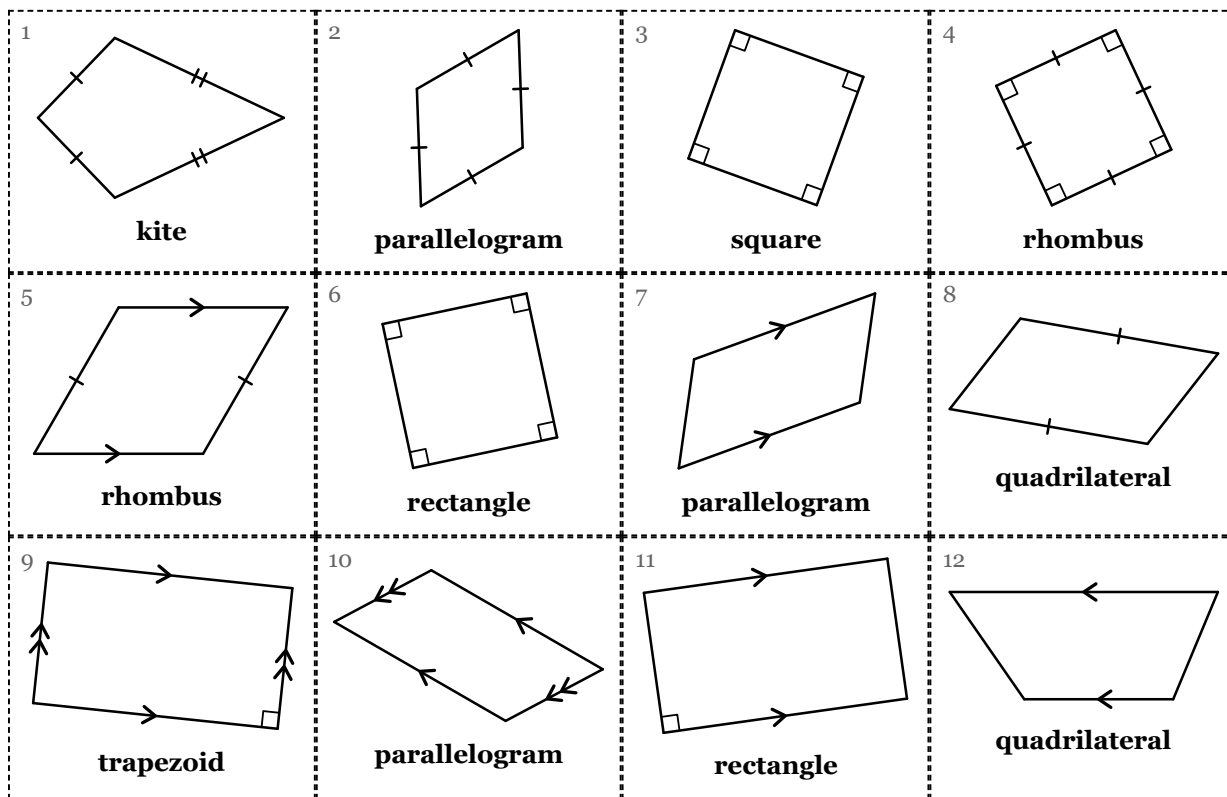
Correct: this is the most specific name the marks prove.

Wrong: the name is true, but the marks prove a more specific name.

Wrong: the marks do not prove this name.

The twelve pieces

Cut along the dotted lines



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Cut & Glue Sort — answers

For the teacher

Correct	1 (kite). Two pairs of congruent sides next to each other make a kite. The one-tick sides and the two-tick sides are not marked equal, so a rhombus is not proved.	6 (rectangle). Four right angles make a rectangle. No sides are marked congruent, so a square is not proved.	8 (quadrilateral). Only one pair of opposite sides is marked congruent. That proves no special name, so it is only a quadrilateral.	10 (parallelogram). Both pairs of opposite sides are parallel, so it is a parallelogram. No right angle and no congruent sides next to each other are marked, so nothing more is proved.
Too general	2 (parallelogram). It is a parallelogram, but that is not the most specific name. Four congruent sides make a rhombus. No right angle is marked, so a square is not proved.	4 (rhombus). It is a rhombus, but that is not the most specific name. Four congruent sides and four right angles make a square. No name is more specific than square.	9 (trapezoid). It is a trapezoid, but that is not the most specific name. Both pairs of sides are parallel, so it is a parallelogram, and a parallelogram with one right angle is a rectangle. No sides are marked congruent, so a square is not proved.	12 (quadrilateral). It is a quadrilateral, but that is not the most specific name. One pair of sides is parallel, so it is a trapezoid. Nothing shows that the other pair is parallel.
Not proved	3 (square). It is drawn to look like a square, but the marks do not prove it. Four right angles make a rectangle. No sides are marked congruent, so a square is not proved.	5 (rhombus). It is drawn to look like a rhombus, but the marks do not prove it. One pair of sides is parallel, so it is a trapezoid. The other pair is marked congruent, not parallel. An isosceles trapezoid has these marks too, so a parallelogram is not proved.	7 (parallelogram). It is drawn to look like a parallelogram, but the marks do not prove it. One pair of sides is parallel, so it is a trapezoid. Nothing shows that the other pair is parallel.	11 (rectangle). It is drawn to look like a rectangle, but the marks do not prove it. One pair of sides is parallel, so it is a trapezoid. One right angle does not make a rectangle here, because nothing shows that the other pair of sides is parallel.

Every row holds four pieces. To check a piece with a student, ask: “Which names do the marks prove? Cross out every name they do not prove. Which name that is left is the most special?” If the printed name is that one, the piece is Correct. If the printed name was not crossed out but is not the most special, it is Too general. If the printed name was crossed out, it is Not proved.