

Grade 3 · Quadrilaterals and Partitioning Shapes · Worksheet Answer Key

Common Core 3.G.A.1, 3.G.A.2 · mathovore.fr

Every problem has a full worked solution with the final answer in bold. Check the sides and angles of each shape first, then check how the areas of the parts compare. Use the steps to find where a mistake happened and to see why a shape fits its name.

Grade 3 Common Core: 3.G.A.1 · 3.G.A.2

Problem 1: Count the sides

A triangle has 3 sides. The kite has 4 sides. The hexagon has 6 sides.

Only the kite has exactly 4 sides, so the quadrilateral is **B**. Sides: $A = 3$, $B = 4$, $C = 6$.

Problem 2: Spot the quadrilaterals

Count the sides of each shape: A has 4, B has 3, C has 4, D has 5, E has 4.

The quadrilaterals are **A, C and E**.

Problem 3: Sides and corners

Every quadrilateral has 4 straight sides. Each place where two sides meet is a vertex, and there are 4 of them.

4 sides and 4 vertices.

Problem 4: Right angles in a rectangle

The small squares in the corners show right angles. There is one in each corner.

The rectangle has **4 right angles**. The top and bottom sides are both 6 in. The left and right sides are both 3 in, so **opposite sides are equal**.

Problem 5: Sides of a rhombus

Each side has one tick mark, so all 4 sides are equal.

The fourth side is the same length as the other three: **5 inches**.

Problem 6: True or false?

- a. **True.** All 4 sides of a square match.
- b. **True.** Every corner of a square is a right angle.
- c. **False.** A rectangle can be long and thin, like 6 in by 3 in.
- d. **False.** A rhombus can lean over with corners that are not right angles.

Problem 7: Name the shape

A: 4 equal sides and 4 right angles. **Square.**

B: 4 right angles but the sides are not all equal. **Rectangle.**

C: 4 equal sides and no right angles. **Rhombus.**

D: 4 sides with neither attribute. **Other quadrilateral** (a kite).

Problem 8: Shared attributes

Every square and every rectangle has **4 right angles**.

Every square and every rhombus has **4 equal sides**.

Problem 9: The square family

A square has 4 right angles, so it is a **rectangle**. A square has 4 equal sides, so it is a **rhombus**.

It meets the rule for both groups.

Problem 10: Sort the shapes

Rhombuses have 4 equal sides: **A and C** (the square counts).

Rectangles have 4 right angles: **A and B**.

Neither: **D, E and F**.

Problem 11: Is it a rhombus?

A rhombus has 4 equal sides. All 4 sides are 7 in, so it **is a rhombus**.

A square needs 4 right angles. This shape has none, so it is **not a square**.

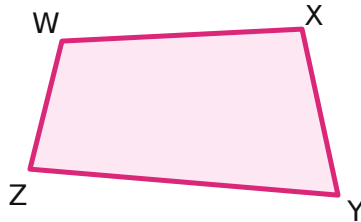
Problem 12: Rectangle clues

Four right angles make it a **rectangle**.

The sides are not all equal, because 9 is not 4. So it is **not a square**.

Problem 13: Draw a quadrilateral

Draw 4 straight sides that are all different lengths, with no right angles. One example is shown.



One possible answer: four unequal sides and no right angles.

It has **4 sides**. The sides are unequal and no corner is a right angle, so it fits none of the three groups.

Problem 14: Four equal parts

There are 4 equal parts, so each part is $\frac{1}{4}$ of the rectangle.

Area of one part: $12 \div 4 = 3$. Check: one strip covers 3 squares.

The shaded part has an area of **3 square units**.

Problem 15: Thirds

3 equal parts means each part is $\frac{1}{3}$ of the whole.

$12 \div 3 = 4$. Check: a strip is 2 wide and 2 tall, so it covers 4 squares.

Each part has an area of **4 square units**.

Problem 16: Eighths

8 equal parts: each part is $\frac{1}{8}$ of the square.

$16 \div 8 = 2$. Each piece is 2 wide and 1 tall, which covers 2 squares.

Each part has an area of **2 square units**.

Problem 17: Which are halves?

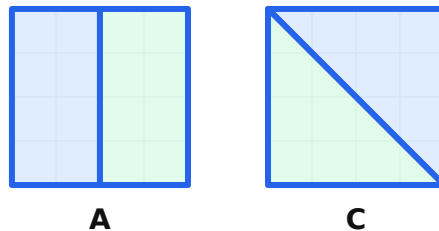
A: both parts are 2 by 4, so each has 8 square units. Equal.

B: the parts have 4 and 12 square units. Not equal.

C: the diagonal makes two triangles of 8 square units each. Equal.

D: the parts have 12 and 4 square units. Not equal.

Halves: **A and C**. Each half is $\frac{1}{2}$ of the square.

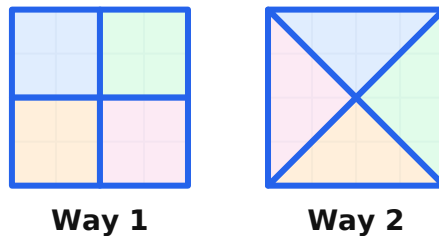


Equal halves: squares A and C.

Problem 18: Two ways to make fourths

Way 1: cut down the middle and across the middle to make 4 small squares of 4 square units each.

Way 2: draw both diagonals to make 4 triangles of 4 square units each.



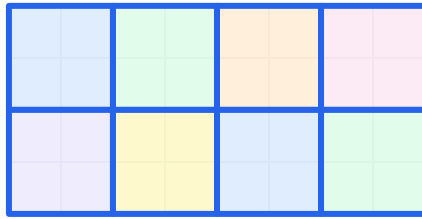
Each part is $\frac{1}{4}$ of the square.

Problem 19: Maya's garden

Garden: $8 \times 4 = 32$ square feet.

One section: $32 \div 8 = 4$ square feet. Check: each section is 2 ft by 2 ft.

Each section is $\frac{1}{8}$ of the garden. Answers: **32 sq ft, 4 sq ft, $\frac{1}{8}$** .



Eight sections of 4 square feet.

Problem 20: Diego's brownies

Pan: $6 \times 4 = 24$ square inches.

One piece: $24 \div 6 = 4$ square inches, which is $\frac{1}{6}$ of the pan.

Liam ate 2 pieces: $2 \times 4 = 8$.

One piece: **4 sq in**. Liam ate **8 sq in**.

Problem 21: Jamal's claim

A square must have 4 right angles. Jamal's shape has none, so Jamal is **not correct**.

It has 4 equal sides, so it is a **rhombus**.

Problem 22: Aisha's flag

Flag: $9 \times 6 = 54$ square inches.

One stripe: $54 \div 3 = 18$ square inches. Check: each stripe is 9 in by 2 in, and $9 \times 2 = 18$.

Each stripe is $\frac{1}{3}$ of the flag. Answers: **54 sq in, 18 sq in, $\frac{1}{3}$** .

Problem 23: Priya's quilt

Quilt: $4 \times 4 = 16$ square feet.

One triangle: $16 \div 4 = 4$ square feet, which is $\frac{1}{4}$ of the quilt.

Answers: **16 sq ft** and **4 sq ft**.

Problem 24: Mei and Noah's cakes

Each cake: $5 \times 4 = 20$ square inches.

Mei: $20 \div 5 = 4$ square inches per piece, $\frac{1}{5}$ of the cake.

Noah: $20 \div 4 = 5$ square inches per piece, $\frac{1}{4}$ of the cake.

$5 - 4 = 1$. **Noah's pieces are bigger, by 1 square inch.**