

Area Maze

CKSTEM Math Problem Solving · Grades 4–7

Try each problem on your own first — then watch the solution videos.

LO If two rectangles share a wall AND one rectangle's area + that-side is known, then that side's length = $\text{area} \div \text{side}$; the SHARED wall is the same in both.

A reading-corner mat is made from two rectangles in a single row that share a vertical wall. The left rectangle has area 12 square centimeters and is 3 centimeters wide. The whole row is 8 centimeters wide. Find the area of the shaded rectangle on the right.

WORK IT OUT HERE

L1 If a length recovered in one place is needed elsewhere, then walk it across the figure, adding or subtracting the known offsets between rectangles.

A welcome sign is built from two connected rectangles in a step shape. The top rectangle has area 56 square centimeters and is 7 centimeters tall. The shaded rectangle below sticks out 5 centimeters to the left of the top and is 4 centimeters short of the top on the right. The shaded rectangle is 6 centimeters tall. Find its area.

WORK IT OUT HERE

L2 If two rectangles have EQUAL areas AND share a side, then their OTHER sides are equal too.

A comfort blanket strip is made from three rectangles stacked vertically that all share the same width. The top has area 21 square centimeters. The bottom has area 21 square centimeters. The full strip is 10 centimeters tall. A side rectangle of area 36 square centimeters and width 9 centimeters is attached to the right, sharing the strip's full height. Find the area of the shaded middle rectangle.

WORK IT OUT HERE

L3 If two (or more) adjacent rectangles share a common side, then **$(\text{sum of areas}) \div (\text{shared side}) = \text{sum of the other sides}$** .

A welcome banner has three rectangles in a row at the bottom, with areas 12, 16, and 20 sq cm. They all share the same height. A top cap rectangle sits on the first two bottom rectangles. The last two bottom rectangles together are 7 centimeters wide. The cap is 5 centimeters tall. Find the area of the cap.

WORK IT OUT HERE

L4 If two adjacent rectangles share a side **AND** you're given the **DIFFERENCE** in their areas (and the difference in their other sides), then **$\text{shared side} = (\text{area difference}) \div (\text{side difference})$** .

A community mural frame is split into three rectangles in a row, all sharing the same height. The left has area 12 square centimeters. The right has area 24 square centimeters. The left two rectangles together span 8 centimeters in width. The right two rectangles together span 11 centimeters in width. Find the area of the shaded middle rectangle.

WORK IT OUT HERE

L5

Pick the right principle at each step — L0–L4 are the toolbox, and L5 puzzles need 2–3 chained correctly.

A relief map display has three rows of rectangles arranged in offset columns. The top row covers two columns with total area 36 square centimeters over a combined width of 9 centimeters. The middle row has three side-by-side rectangles with areas 18 on the left, 30 on the right, and an unknown middle. The bottom row covers two different columns with total area 21 square centimeters over a combined width of 7 centimeters. Find the total area of the whole middle column from top to bottom.

WORK IT OUT HERE