

# Geometry · Shape & Space

CKSTEM Math Problem Solving · Grades 4–8

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

## ★ Length, Angle, or Area?

A rectangle is 6 m long and 4 m wide. Three readers each ask a different question about the SAME rectangle: (a) the distance all the way around it, (b) the measure of one of its corners, (c) the space covered inside it. Give all three answers with units.

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## LO Perimeter Is the Boundary

A welcome path is built from 6 identical square mats joined edge-to-edge in a single row. Each mat is 1 m on a side. What is the perimeter of the whole path?

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**L1 Fixed Perimeter → Half**

A rectangular welcome garden has a perimeter of 30 m. The length is 3 m more than the width. What is the area of the garden?

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**L2 Area = Base × Height**

A rectangular help hall measures 8 m by 5 m. A triangular canopy sits on a base of 8 m with a height of 6 m. Find the area of the hall AND the area of the canopy.

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### L3 Angles Combine

At the apex A of a canopy, a support ray AD splits the top angle  $\angle BAC$  into two parts.  $\angle BAD = 35^\circ$  and  $\angle DAC = 28^\circ$ . What is  $\angle BAC$ ?

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### L4 Exterior Angles Make 360

A regular polygon has each interior angle equal to 4 times its exterior angle at the same vertex. How many sides does the polygon have?

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### L5 Similar Triangles

In triangle ABC, a sign band DE is drawn parallel to BC with D on AB and E on AC.  $AD = 4$ ,  $DB = 6$ , and  $BC = 15$ . Find DE.

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### L6 Chain the Angle Facts

On a circular pond with centre O, points A, B, C sit on the rim so  $OA = OB = OC$  are radii. The central angles are  $\angle AOB = 80^\circ$  and  $\angle BOC = 40^\circ$ . Find  $\angle ABC$ .

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