LESSON MAKER PRO

# Moves Keep Shape

*Find matching measures after slides, flips, and turns.*

**GRADE 6 · 6.GM.1.2**

**6.GM.1.2** "Recognize that translations, reflections, and rotations preserve congruence and use them to show that two figures are congruent."

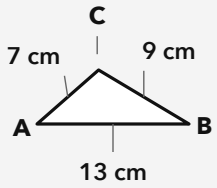
NAME _____ DATE _____

## WHAT STAYS THE SAME?

A translation slides a figure, a reflection flips it, and a rotation turns it. Each move keeps matching side lengths and angles equal, so the image is congruent to the original.

### WORKED EXAMPLE

A reflection sends A to D, B to E, and C to F. How long is EF? Are the triangles congruent?




1. BC matches EF.
2. A reflection keeps their lengths equal.
3. EF is 9 cm.

**Answer: EF is 9 cm. The triangles are congruent.**

## PRACTICE 4 problems

**1** Side PQ is 4 cm. A translation sends P to R and Q to S. How long is RS?

**ANSWER** _____

**2** A reflection sends side JK to side LM. LM is 15 cm. How long is JK?

**ANSWER** _____

**3** A 180° rotation sends one 48° angle to another angle. What is the image angle's measure?

**ANSWER** _____

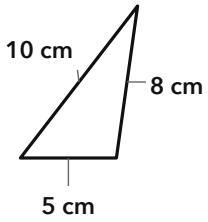
**4** A figure has a perimeter of 26 cm. It is translated, then rotated. What is its new perimeter? Is it congruent to the original?

**ANSWER** _____

_____

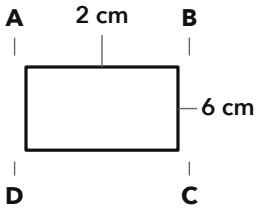
## APPLY IT Show your work

**1** A team flips the pictured badge design for another jersey. What is the flipped badge's perimeter? Is it congruent to the first badge?




**ANSWER** _____

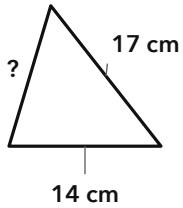
**2** A game designer turns the pictured tile one quarter-turn. How long is the side matching BC in the turned tile? Are the tiles congruent?




**ANSWER** _____

## CHALLENGE One step up

A reflection followed by a rotation makes a copy of this triangle. The copy's perimeter is 50 cm. Find the side marked ?. Explain why you can use the copy's perimeter.




WORK SPACE AND ANSWER

**ANSWER KEY**

# Moves Keep Shape

**GRADE 6 · 6.GM.1.2**

## PART 1 · PRACTICE

| # | PROBLEM | ANSWER |
|---|---|---|
| 1 | Side PQ is 4 cm. A translation sends P to R and Q to S. How long is RS? | **4 cm** |
| 2 | A reflection sends side JK to side LM. LM is 15 cm. How long is JK? | **15 cm** |
| 3 | A 180° rotation sends one 48° angle to another angle. What is the image angle's measure? | **48°** |
| 4 | A figure has a perimeter of 26 cm. It is translated, then rotated. What is its new perimeter? Is it congruent to the original? | **26 cm; yes, it is congruent.** |

## PART 2 · APPLY IT

1. **23 cm; yes, the badges are congruent.** Add the pictured side lengths: 5 + 8 + 10 = 23 cm. A flip is a reflection, which preserves congruence.
2. **6 cm; yes, the tiles are congruent.** BC is 6 cm. A quarter-turn is a rotation, so its matching side stays 6 cm and the tiles remain congruent.

## CHALLENGE

**19 cm. Both moves preserve side lengths, so the original also has a perimeter of 50 cm. The missing side is 50 - 14 - 17 = 19 cm.**

Accept slide, flip, or turn in place of translation, reflection, or rotation. A complete explanation links unchanged matching lengths to congruence.