



Congruence through transformations

GRADE 8 MATH

Name _____

Date _____

Squared paper and tracing paper. Give every reflection its mirror line and every rotation its centre and angle.

WORKED EXAMPLE

Congruent means a sequence of rigid motions carries one figure exactly onto the other. Orientation reversed $\Rightarrow$ the sequence needs an odd number of reflections. Describe motions with their parameters, or nobody can follow them.

1. Write the definition of congruent in terms of transformations.

FLUENCY

Show your thinking

Answer

2. Reflect $(1,1)$, $(4,1)$, $(1,3)$ in the y-axis. Give the new corners.

APPLICATION

Show your thinking

Answer

3. Translate your answer to item 2 by 6 right and 2 up. Give the corners.

APPLICATION

Show your thinking

Answer

4. Rotate $(1,1)$, $(4,1)$, $(1,3)$ by 90° anticlockwise about the origin. Give the corners.

APPLICATION

Show your thinking

Answer

5. Is your answer to item 4 congruent to the original? Does its orientation match?

REASONING

Show your thinking

Answer

6. Two congruent figures have corners running in the SAME direction. What can you say about a sequence that maps one to the other?

REASONING

Show your thinking

Answer

7. A triangle has corners $(2,2)$, $(8,2)$, $(2,6)$. Is it congruent to $(1,1)$, $(4,1)$, $(1,3)$? Show your working.

APPLICATION

Show your thinking

Answer

8. Why is comparing SQUARED side lengths a better test than comparing lengths?

REASONING

Show your thinking

Answer

9. Sam reflects a figure twice in the same mirror line. Describe the result in one rigid motion.

REASONING

Show your thinking

Answer