



Congruence through transformations

GRADE 8 MATH

Name _____

Date _____

Squared paper. Every reflection needs its mirror line; every rotation needs its centre and angle.

WORKED EXAMPLE

Congruent means a sequence of rigid motions carries one figure onto the other.
Orientation reversed $\Rightarrow$ an odd number of reflections is needed. Describe motions with their parameters.

1. Reflect $(2,1)$, $(5,1)$, $(2,3)$ in the x-axis, then translate 1 left and 4 up. Give the final corners.

APPLICATION

Show your thinking

Answer

2. Are $(1,2)$ $(3,2)$ $(1,5)$ and $(4,6)$ $(6,6)$ $(4,9)$ congruent? Show how you decided.

APPLICATION

Show your thinking

Answer

3. Describe a single rigid motion that carries the first triangle in item 2 onto the second.

REASONING

Show your thinking

Answer

4. A figure's corners read clockwise; its image reads clockwise too. Must the sequence contain a reflection?

REASONING

Show your thinking

Answer

5. A triangle with sides 5, 12 and 13 cm and one with sides 10, 24 and 26 cm. Congruent, similar, or neither?

APPLICATION

Show your thinking

Answer

6. Explain why “rotate it” is not a complete description of a rotation.

REASONING

Show your thinking

Answer

7. Two figures are congruent. Is there always exactly one sequence that maps one to the other?

REASONING

Show your thinking

Answer

8. Why is congruence defined using transformations rather than by measuring every side and angle?

REASONING

Show your thinking

Answer