Constructing symmetry axes with ruler and compass

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Name: _____ Class: _____ Date: _____

Worked example 1

A and B are a pair of corresponding points. Construct their symmetry axis with ruler and compass. Keep the arc intersections.

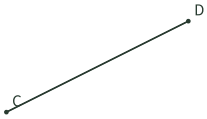


Geometry diagram; not drawn to scale except for construction tasks.

Guided attempt 2

C and D are distinct corresponding points on the slanted segment. Complete the construction using the scaffold, without estimating the axis by eye.

1. Choose radius greater than ___ of CD.
2. Use centres ___ and ___ with the same radius to obtain X and Y.
3. Draw line ___; check it is ___ to CD and passes through its ___.



Geometry diagram; not drawn to scale except for construction tasks.

Prerequisite 3

Which two checks certify that a line is the axis exchanging distinct A and A′?

A. It is perpendicular to AA′ somewhere.
B. It only passes through the midpoint.
C. It passes through the midpoint of AA′ and is perpendicular to AA′.
D. It passes through A and A′.

Prerequisite 4

To obtain two distinct intersections of equal-radius circles centred at A and B, how should the radius compare with half AB?

A. It must equal half AB.
B. It must be smaller than half AB.
C. It must be zero.
D. It must be greater than half AB.

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Independent practice 5

E and F are corresponding points. Construct their full symmetry axis with ruler and compass.



Geometry diagram; not drawn to scale except for construction tasks.

Independent practice 6

G and H are corresponding points on the vertical segment. Construct their symmetry axis and mark the right angle.



Geometry diagram; not drawn to scale except for construction tasks.

Independent practice 7

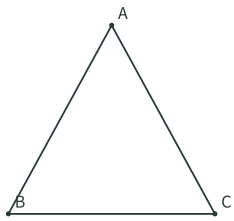
A corresponds to A′ and B corresponds to B′. Construct one line that exchanges both pairs, and show how the second pair checks your first construction.



Geometry diagram; not drawn to scale except for construction tasks.

Independent practice 8

In the non-equilateral isosceles triangle, AB=AC. Use ruler and compass to construct the symmetry axis. Explain why the line you construct passes through A.



Geometry diagram; not drawn to scale except for construction tasks.

Exit question 9

A pupil joins distinct corresponding points A and A′ and labels the joining line “axis”. Explain the error and state the line that should be constructed.



Geometry diagram; not drawn to scale except for construction tasks.

Exit question 10

J and J′ are a corresponding pair. Draw their full axis, and mark both the midpoint and right-angle checks. Keep any compass traces used.



Geometry diagram; not drawn to scale except for construction tasks.