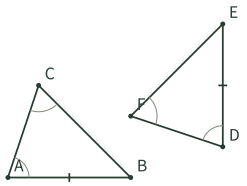
Congruence: ASA, AAS and right-triangle HL

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Worked example 1

Use the two marked angle pairs and AB=DE to prove congruence by AAS.

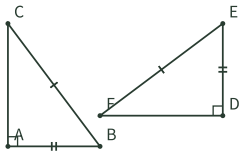


Geometry diagram; not drawn to scale except for construction tasks.

Guided attempt 2

Both triangles have the marked right angles. Complete an HL proof using the marked side pairs.

1. The hypotenuses are ___ and ___.
2. Equal hypotenuses ___=___ and legs ___=___ give ___.

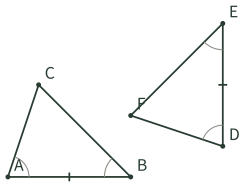


Geometry diagram; not drawn to scale except for construction tasks.

Prerequisite 3

Which side lies between ∠BAC and ∠ABC?

A. BC
B. There is no included side.
C. AB
D. AC

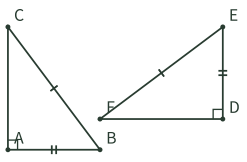


Geometry diagram; not drawn to scale except for construction tasks.

Prerequisite 4

∠BAC=90°. Which side is the hypotenuse of △ABC?

A. AB
B. AC
C. Any side may be the hypotenuse.
D. BC



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

Congruence: ASA, AAS and right-triangle HL

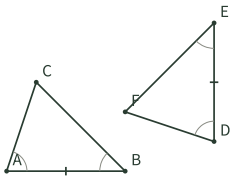
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Independent practice 5

The equal angles are at A,D and B,E, with AB=DE. Which criterion uses exactly these facts directly?

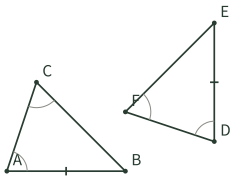
A. ASA
B. SSS
C. HL
D. AAA



Independent practice 6

The equal angles are at A,D and C,F, with AB=DE. Which direct criterion applies?

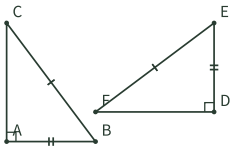
A. SSA
B. AAS
C. ASA using AB as the included side
D. SSS



Independent practice 7

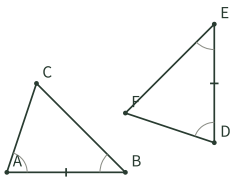
In the marked right triangles, BC=EF and AB=DE. Which conclusion follows?

A. All triangle angles are 90°.
B. The information is AAA.
C. AC=DF by HL congruence.
D. AC=DE because the drawing looks equal.



Independent practice 8

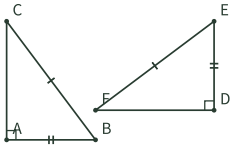
Use the given two angle pairs and their included side to prove congruence. Name your criterion and reasons.



Exit question 9

Why does an HL proof need both right-angle conditions before identifying the hypotenuses?

A. HL is a criterion for two right triangles; a longest-looking side is insufficient.
B. Any two triangles have hypotenuses.
C. The right angles may be assumed from the picture.
D. HL only needs one arbitrary equal side.



Exit question 10

Can three equal angle pairs replace the equal-side requirement in ASA or AAS?

A. Yes if the angles are acute.
B. No: scale is not fixed without a corresponding side.
C. Yes: AAA is stronger than ASA.
D. Yes if the triangles are labelled.

