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Lesson 27: Triangle Proofs

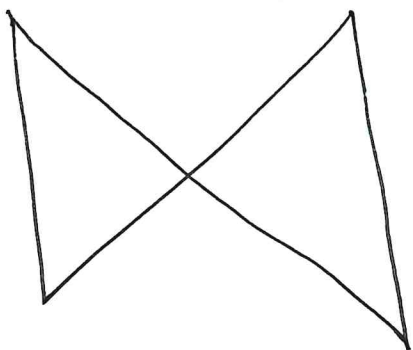
5 ways to prove triangle \cong

ASA
AAS

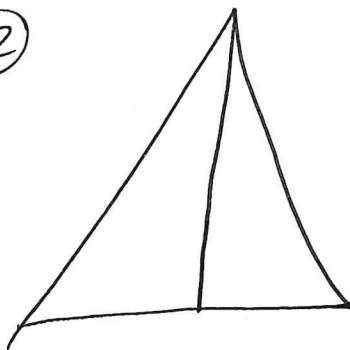
SSS
SAS

HL 90°

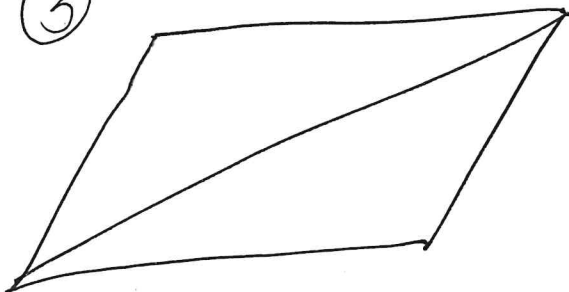
①



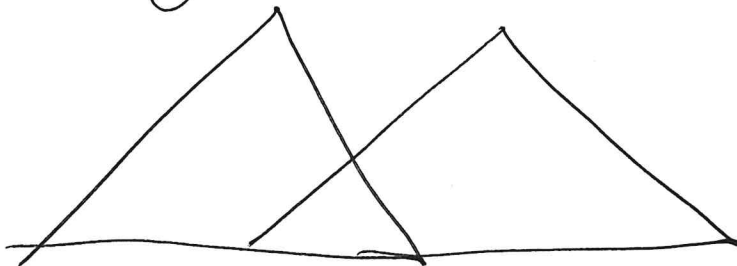
②



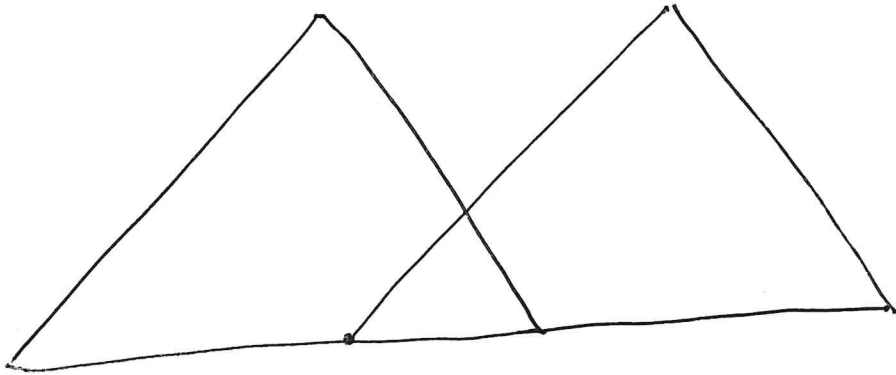
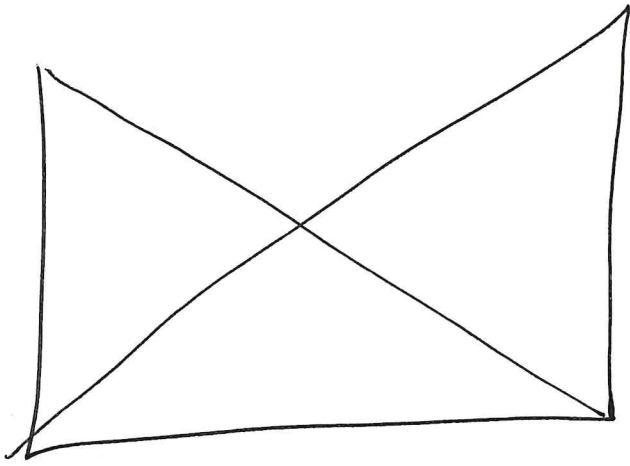
③



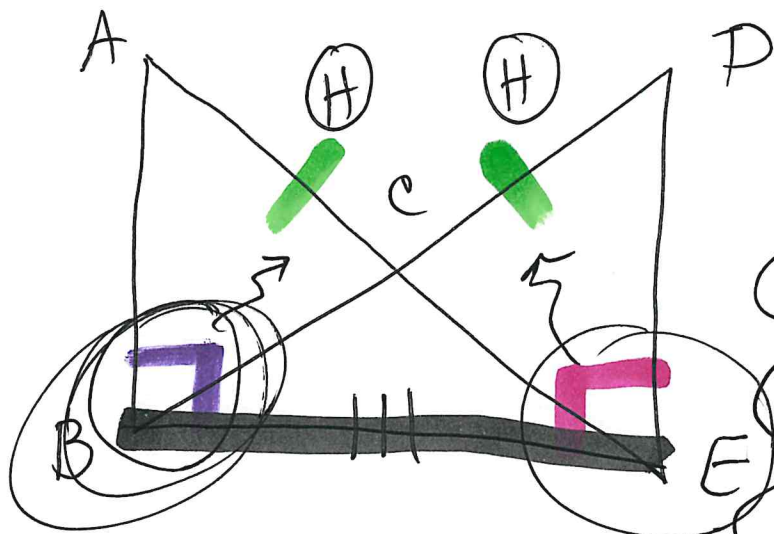
④



6



(ie 1)



Given \triangleright

- $\overline{AB} \perp \overline{BE}$ ✓
- $\overline{BE} \perp \overline{DE}$ ✓
- $\overline{AE} \cong \overline{BD}$ ✓

prove $\triangleright \triangle ABE \cong \triangle DBE$

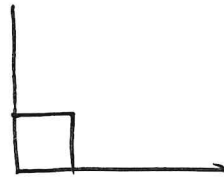
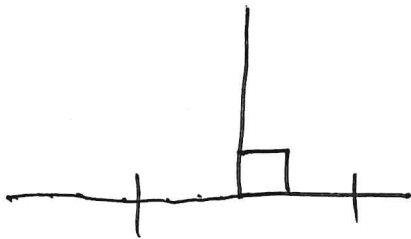
Statement

Reason

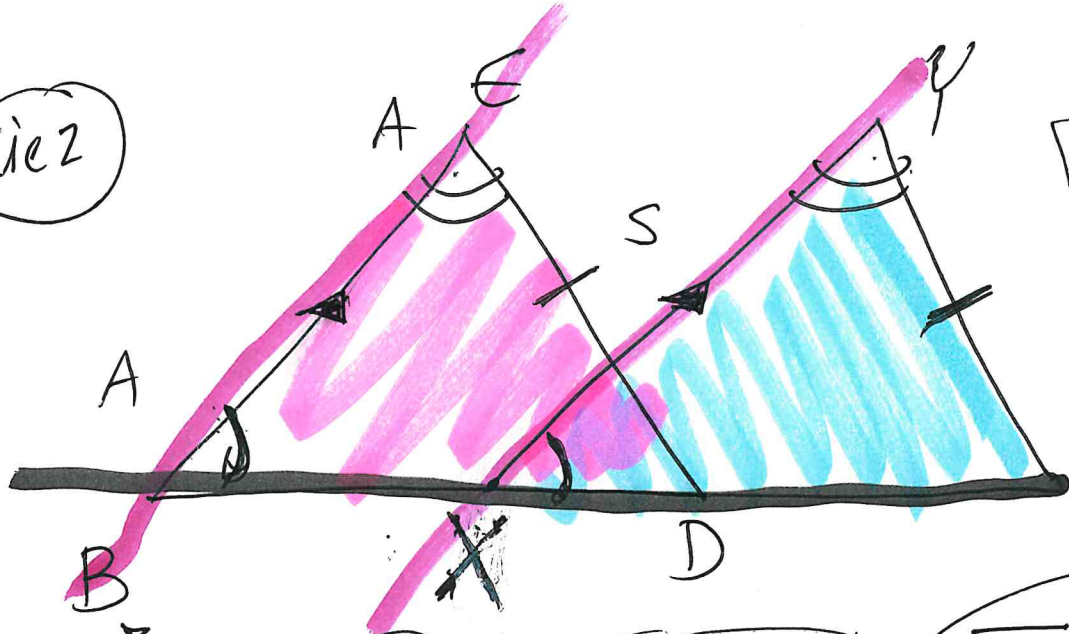
- ① See Above
- ② $\overline{AE} \cong \overline{DB}$
- ③ $\overline{BE} \cong \overline{BE}$
- ④ $\angle ABE \cong \angle DEB$
- ⑤ $\triangle ABE \cong \triangle DBE$

- ① Given
- ② corr. sides (\cong)
- ③ Reflexive
- ④ Right \angle 's perp.
- ⑤ HL 90

(3)



(ie 2)



\parallel lines
 alt. int \angle 's
 corr. \angle 's

Given

$\overline{BE} \parallel \overline{XY}$

$\angle E \cong \angle Y$

$\overline{ED} \cong \overline{YZ}$

prove $\triangle BED \cong \triangle XYZ$

Statements

Reasons

① See Above

① Given

② $\angle B \cong \angle X$

② corr. \angle 's (\cong)

③ $\angle E \cong \angle Y$

③ corr. \angle 's (\cong)

④ $\overline{ED} \cong \overline{YZ}$

④ corr. sides (\cong)

⑤ $\triangle BED \cong \triangle XYZ$

⑤ AAS