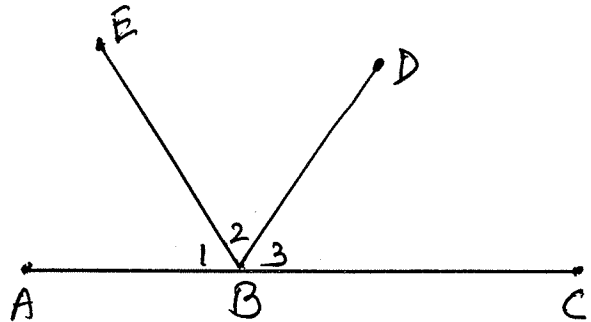


Begin Proofs: Day 5 Homework

Complete each of the proofs in flow proof form like we did in class. Your tools are all of the definitions, properties, postulates, and theorems we have covered in class thus far. Be sure to cite the reasons in a column format.

① Given: $\angle 1 \cong \angle 3$

Prove: $\triangle ABD \cong \triangle EBC$



① $\angle 1 \cong \angle 3 \rightarrow$ ② $m\angle 1 = m\angle 3$
 ③ $m\angle 2 = m\angle 2$ } \rightarrow ④ $m\angle 1 + m\angle 2 = m\angle 2 + m\angle 3$
 ⑤ $m\angle 1 + m\angle 2 = m\angle ABD$
 $m\angle 2 + m\angle 3 = m\angle EBC$

⑥ $m\angle ABD = m\angle EBC \rightarrow$ ⑦ $\triangle ABD \cong \triangle EBC$

① Given

② $\cong \angle$ s have = measures

③ Reflexive Property

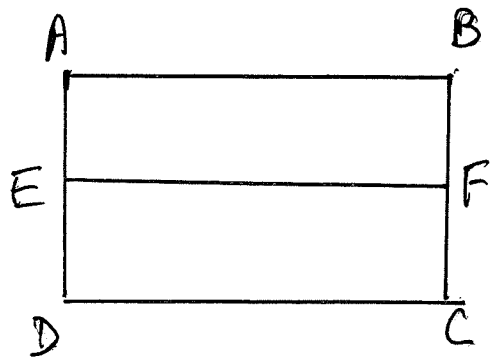
④ Addition Prop.

⑤ Angle Add. Post.

⑥ Substitution Prop.

⑦ $\cong \angle$ s have = measures.

- ② Given: $\overline{AD} \cong \overline{BC}$
 E midpoint of \overline{AD}
 F midpoint of \overline{BC}



Prove: $\overline{AE} \cong \overline{BF}$

- ① E midpt of \overline{AD} → ② $\overline{AE} \cong \overline{ED}$ → ③ $AE = ED$
 ④ $AE + ED = AD$ } → ⑤ $AE + AE = AD$
 ⑥ $\overline{AD} \cong \overline{BC}$ → ⑦ $AD = BC$

→ ⑧ $AE + AE = BC$ →

- ⑨ F midpt of \overline{BC} → ⑩ $\overline{BF} \cong \overline{FC}$ → ⑪ $BF = FC$
 ⑫ $BF + FC = BC$ } → ⑬ $BF + BF = BC$

→ ⑭ $AE + AE = BF + BF$ → ⑮ $2AE = 2BF$ → ⑯ $AE = BF$

⑰ $\overline{AE} \cong \overline{BF}$

- ① Given
 ② Midpt ÷ segmt into 2 \cong parts.
 ③ \cong segmts have = measures.
 ④ Segmt Add Post.
 ⑤ Substitution Prop.

- ⑥ Given
 ⑦ \cong segmts have = measures.
 ⑧ Substitution Prop

⑨ Given

- ⑩ Midpt ÷ seg into 2 \cong parts.

- ⑪ \cong seg have = measures.

- ⑫ Segmt Add. Prop

- ⑬ Substitution Prop.

- ⑭ Substitution Prop.

- ⑮ Simplification

- ⑯ Division Prop.

- ⑰ \cong Seg have = measures.