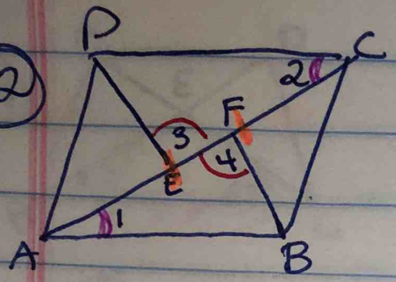
② 

<u>Given</u>: $\measuredangle 1 \cong \measuredangle 2$

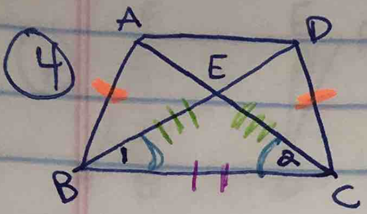
$\overline{AE} \cong \overline{CF}$

$\overline{DE} \parallel \overline{FB}$

<u>Prove</u>: ABCD is a parallelogram

① $\measuredangle 1 \cong \measuredangle 2$	① Given
② $\overline{AB} \parallel \overline{DC}$	② If alternate interior angles are $\cong$ → lines are ∥ [1]
③ $\overline{AE} \cong \overline{CF}$	③ Given
④ $\overline{EF} \cong \overline{EF}$	④ Reflexive
⑤ $AE + EF = EF + CF$	⑤ Addition [3, 4]
⑥ $AE + EF = AF$ $EF + CF = EC$	⑥ Segment Addition
⑦ $AF = EC$	⑦ Substitution [5, 6]
⑧ $\overline{DE} \parallel \overline{FB}$	⑧ Given
⑨ $\measuredangle 3 \cong \measuredangle 4$	⑨ If lines are parallel → alt. int. angles are $\cong$ [8]
⑩ $\triangle AFB \cong \triangle CED$	⑩ ASA [1, 7, 8]
⑪ $\overline{DC} \cong \overline{AB}$	⑪ CPCTC [10]
⑫ ABCD is a parallelogram	⑫ One set of opposite sides are ∥ & $\cong$ [2, 11]

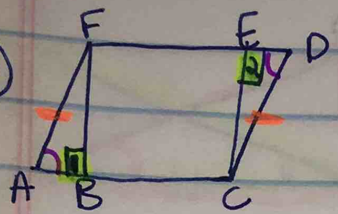
4



Given: ABCD is an isosceles trapezoid with $\overline{AD} \parallel \overline{BC}$

Prove: $\triangle EBC$ is isosceles

1. ABCD is an isosceles trapezoid	1. Given
2. $\overline{AB} \cong \overline{DC}$	2. Def. isosceles trapezoid [1] (legs are $\cong$)
3. $\overline{AC} \cong \overline{BD}$	3. Def. isosceles trapezoid [1] (Diagonals are $\cong$)
4. $\overline{BC} \cong \overline{BC}$	4. Reflexive Property
5. $\triangle ABC \cong \triangle DCB$	5. SSS [2, 3, 4]
6. $\angle 1 \cong \angle 2$	6. CPCTC [5]
7. $\overline{BE} \cong \overline{EC}$	7. Isosceles Triangle Theorem [6]
8. $\triangle BEC$ is isosceles	8. Def. of Isosceles Triangle [7]

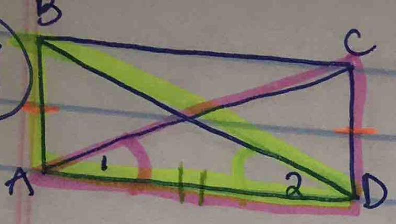
6 

Given: ACDF is a parallelogram

$\overline{FB} \perp \overline{AC}$, $\overline{CE} \perp \overline{FD}$

Prove: $\overline{AB} \cong \overline{BC}$

1. ACDF is a parallelogram	1. Given
2. $\overline{AF} \cong \overline{DC}$	2. Def. of parallelogram (opp. sides are $\cong$) [1]
3. $\measuredangle A \cong \measuredangle D$	3. Def. of parallelogram (opp. angles are $\cong$) [1]
4. $\overline{FB} \perp \overline{AC}$, $\overline{CE} \perp \overline{FD}$	4. Given
5. $\measuredangle 1$ is a right angle, $\measuredangle 2$ is a right angle	5. Def. of perpendicular [4]
6. $\measuredangle 1 \cong \measuredangle 2$	6. Right Angle Theorem [5]
7. $\triangle BAF \cong \triangle EDC$	7. AAS [2, 3, 5]
8. $\overline{AB} \cong \overline{DE}$	8. CPCTC [7]



9

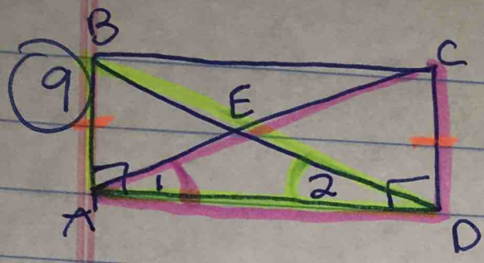
Given: ABCD is a rectangle

Prove: $\measuredangle 1 \cong \measuredangle 2$

1. ABCD is a rectangle	1. Given
2. $\overline{AB} \cong \overline{CD}$	2. Def. of Rectangle (opp. sides are $\cong$) [1]
3. $\overline{AC} \cong \overline{DB}$	3. Def. of Rectangle (diagonals are $\cong$) [1]
4. $\overline{AD} \cong \overline{AD}$	4. Reflexive Property
5. $\triangle BAD \cong \triangle CDA$	5. SSS [2, 3, 4]
6. $\measuredangle 1 \cong \measuredangle 2$	6. CPCTC [5]

*I did this one 2 ways...

see next page :)



Given: ABCD is a rectangle

Prove: $\angle 1 \cong \angle 2$

① ABCD is a rectangle	① Given
② $\overline{AB} \cong \overline{DC}$	② Def. Rectangle [1] (opp. sides are $\cong$)
③ $\angle BAD$ is a right angle $\angle CDA$ is a right angle	③ Def. Rectangle [1] (all angles are right angles)
④ $\angle BAD \cong \angle CDA$	④ Right Angle Theorem [3]
⑤ $\overline{AD} \cong \overline{AD}$	⑤ Reflexive
⑥ $\triangle BAD \cong \triangle CDA$	⑥ SAS [2, 4, 5]
⑦ $\angle 1 \cong \angle 2$	⑦ CPCTC [6]