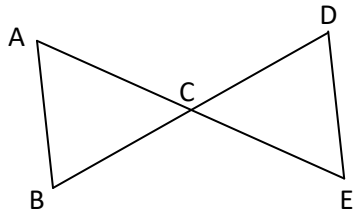
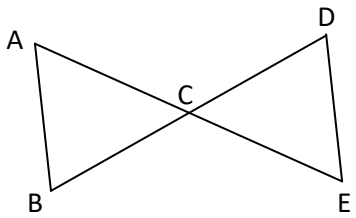
Topic 13
Triangle Congruency Proofs

1) Given: C is the midpoint of $\overline{BD}$
& $\angle A \cong \angle E$
Prove: $\Delta ABC \cong \Delta DEC$



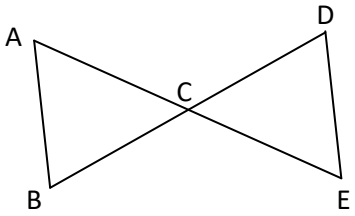
Statements	Reasons
C is the midpoint of $\overline{BD}$	
$\angle A \cong \angle E$	

2) Given: C is the midpoint of $\overline{BD}$
C is the midpoint of $\overline{AE}$
Prove: $\Delta ABC \cong \Delta EDC$



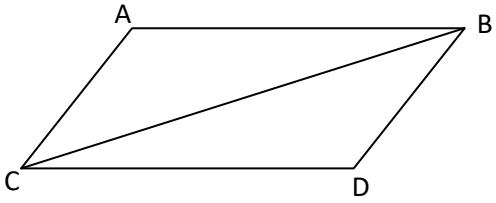
Statements	Reasons
C is the midpoint of $\overline{BD}$	
C is the midpoint of $\overline{AE}$	

3) Given: C is the midpoint of $\overline{BD}$
C is the midpoint of $\overline{AE}$
$\overline{AB} \cong \overline{ED}$
Prove: $\Delta ABC \cong \Delta EDC$



Statements	Reasons
C is the midpoint of $\overline{BD}$	
C is the midpoint of $\overline{AE}$	
$\overline{AB} \cong \overline{ED}$	
$\overline{BC} \cong \overline{DC}$	
$\overline{AC} \cong \overline{EC}$	
$\Delta ABC \cong \Delta EDC$	

4) Given: $\overline{BD} \,//\, \overline{AC}$
$\overline{AB} \,//\, \overline{CD}$
Prove: $\Delta ABC \cong \Delta DCB$

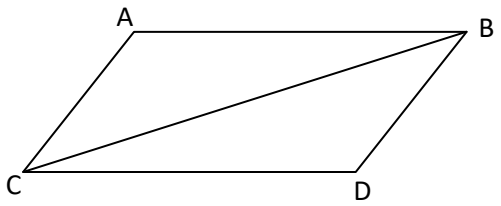


Statements	Reasons

5) Given: $\overline{BD} \cong \overline{AC}$

$\overline{AB} \cong \overline{CD}$

Prove: $\Delta ABC \cong \Delta DCB$

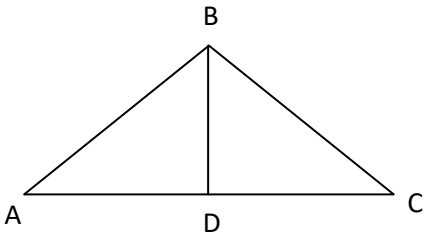


Statements	Reasons

6) Given: $\overline{BD}$ bisects $\angle$ ABC

$\angle$ A $\cong \angle$ C

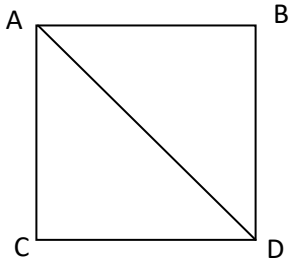
Prove: $\Delta ABD \cong \Delta CBD$



Statements	Reasons

7) Given: Quadrilateral ABCD is a square

Prove: $\Delta ACD \cong \Delta ABC$



Statements	Reasons
Quadrilateral ABCD is a square	
$\overline{AC} \cong \overline{CD} \cong \overline{DB} \cong \overline{BA}$	
$\overline{AD} \cong \overline{AD}$	
$\Delta ACD \cong \Delta ABC$	

8 Advanced)

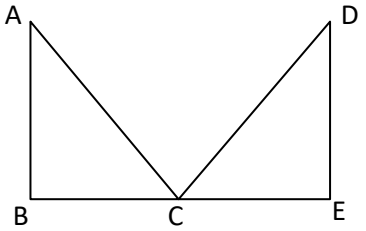
Given: $\overline{AC} \cong \overline{DC}$

C is the midpoint of $\overline{BE}$

$\angle$ ACB = 30°

$\angle$ ACD = 120°

Prove: $\Delta ABC \cong \Delta DEC$



Statements	Reasons
$\overline{AC} \cong \overline{DC}$	
C is the midpoint of $\overline{BE}$	
$\angle$ ACB = 30°	
$\angle$ ACD = 120°	