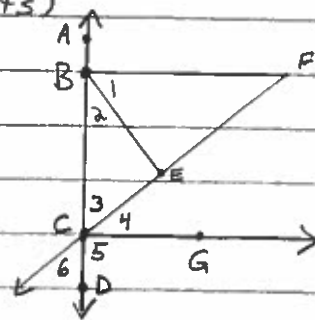


A#18 □ p. 62 CE #1-6 and #7-10 (2-column Proofs)

□ p. 60 Mixed Review #1-7



1.  $m\angle 1 = m\angle 4$ ;  $m\angle 2 = m\angle 3$  [Given]

$m\angle FBC = m\angle 1 + m\angle 2$ ;  $m\angle BCG = m\angle 3 + m\angle 4$  [Add Post]

$m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$  [Add. Prop. of =]

$m\angle FBC = m\angle BCG$  [Trans. Prop. of =]

\*  $\angle FBC \cong \angle BCG$  [Def. of  $\cong$   $\angle$ s]

2.  $AB = CD$  [Given]

$BC = BC$  [Ref. Prop. of =]

$AB + BC = BC + CD$  [Add. Prop. of =]

$AB + BC = AC$ ;  $BC + CD = BD$  [Seg. Add. Post.]

$AC = BD$  [Trans. Prop. of =]

\*  $\overline{AC} \cong \overline{BD}$  [Def. of  $\cong$  segments]

3.  $m\angle 6 = m\angle 4$  [Given]

$\angle 6 \cong \angle 4$  [Def. of  $\cong$   $\angle$ s]

$\angle 3 \cong \angle 6$  [Vert.  $\angle$ s Thrm]

\*  $\angle 3 \cong \angle 4$  [Trans. Prop. of  $\cong$ ]

4.  $\overline{FB} \perp \overline{AD}$ ;  $\overline{BE}$  bisects  $\angle FBC$  [Given]

$m\angle FBC = 90^\circ$  [Def. of  $\perp$ ]

\*  $m\angle 1 = m\angle 2 = 45^\circ$  [ $\angle$  Bisector Thrm #1]

5.  $BE = EF$ ; E is the midpoint of  $\overline{FC}$  [Given]

$CE = EF$  [Midpt. Thrm]

$BE = CE$  [Trans. Prop. of =]

\*  $\overline{BE} \cong \overline{CE}$  [Def. of  $\cong$  seg.]

6.  $\angle 1$  and  $\angle 2$  are complements [Given]

\*  $\overline{BF} \perp \overline{BC}$  [Adj. Comp.  $\angle$ s  $\rightarrow$  Ext. sides  $\perp$ ]

7.  $\angle 4$  and  $\angle 6$  are complements [Given]

$\angle 3 \cong \angle 6$  [Vert.  $\angle$ s Thrm]

$\angle 4$  and  $\angle 3$  are complements [ $\cong$  complements converse]

\*  $\overline{BC} \perp \overline{CG}$  [Adj. Comp.  $\angle$ s  $\rightarrow$  Ext. sides  $\perp$ ]

2] p. 62 CE #1-8

1.  $\angle 6$  is comp. to  $\angle 10$ ;  $\angle 7$  is comp. to  $\angle 10$  [Given]

$\angle 6 \cong \angle 7$  [  $\cong$  Complements Thm ]

2.  $m\angle 5 = 31^\circ$ ;  $m\angle 7 = 31^\circ$  [Given]

$\angle 5 \cong \angle 7$  [Def. of  $\cong$   $\angle$ s]

3.  $\overline{AB} \perp \overline{CD}$  [Given]

$\angle 8 \cong \angle 9$  [  $\perp$  lines  $\rightarrow \cong$  adj.  $\angle$ s ]

4.  $\overline{XY}$  bisects  $\angle WXY$  [Given]

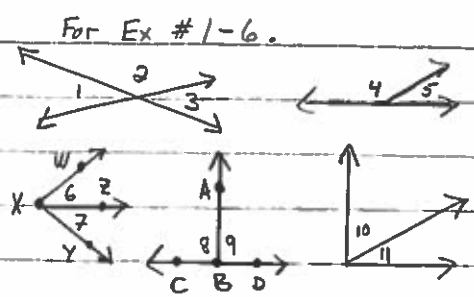
$\angle 6 \cong \angle 7$  [Def. of  $\angle$  bisector]

5.  $\angle 4$  is supp. to  $\angle 6$ ;  $\angle 2$  is supp. to  $\angle 7$ ; and  $\angle 6 \cong \angle 7$  [Given]

$\angle 2 \cong \angle 4$  [  $\cong$  Supplements Thm ]

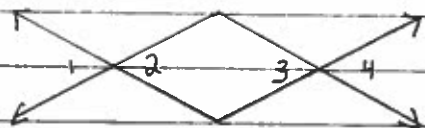
6. Diagrams [Given]

$\angle 1 \cong \angle 3$  [Vert.  $\angle$ s Thm]



7. Given:  $\angle 2 \cong \angle 3$

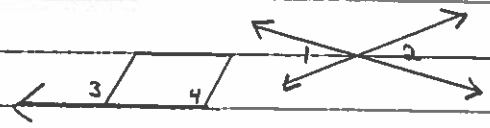
Prove:  $\angle 1 \cong \angle 4$



| Statements  | Reasons                   |
|---|---------------------------|
| ① $\angle 2 \cong \angle 3$                             | ① Given                   |
| ② $\angle 1 \cong \angle 2$ ; $\angle 3 \cong \angle 4$ | ② Vert. $\angle$ s Thm    |
| ③ $\angle 1 \cong \angle 4$                             | ③ Trans. Prop. of $\cong$ |

8. Given:  $\angle 3$  is supp. to  $\angle 1$ ;  $\angle 4$  is supp. to  $\angle 2$

Prove:  $\angle 3 \cong \angle 4$



| Statements  | Reasons                   |
|---|---------------------------|
| ① $\angle 3$ is supp. to $\angle 1$ ; $\angle 4$ is supp. to $\angle 2$ | ① Given                   |
| ② $\angle 1 \cong \angle 2$   | ② Vert. $\angle$ s Thm    |
| ③ $\angle 3 \cong \angle 4$   | ③ $\cong$ supplements Thm |

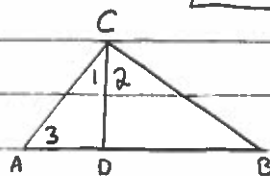
A#18 continued

p. 62 CE #9-10

Key

9. Given:  $\overline{AC} \perp \overline{BC}$ ;  $\angle 3$  is comp. to  $\angle 1$

Prove:  $\angle 3 \cong \angle 2$



| statements  | Reasons  |
|---|--|
| ① $\overline{AC} \perp \overline{BC}$ ; $\angle 3$ is comp. to $\angle 1$ | ① Given  |
| ② $\angle 1$ is comp. to $\angle 2$                                       | ② Ext. sides $\perp \rightarrow$ Adj. Comp. $\angle$ s |
| ③ $\angle 3 \cong \angle 2$   | ③ $\cong$ Complements Thm                              |

10. Given:  $m\angle 1 = m\angle 4$

Prove:  $m\angle 2 = m\angle 3$



| statements  | Reasons                     |
|---|-----------------------------|
| ① $m\angle 1 = m\angle 4$   | ① Given                     |
| ② $m\angle 1 + m\angle 2 = 180^\circ$ ; $m\angle 3 + m\angle 4 = 180^\circ$ | ② $\angle$ Add Post.        |
| ③ $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$                           | ③ Trans. Prop. of =         |
| ④ $m\angle 2 = m\angle 3$   | ④ Subtr. Prop. of = (③ - ①) |