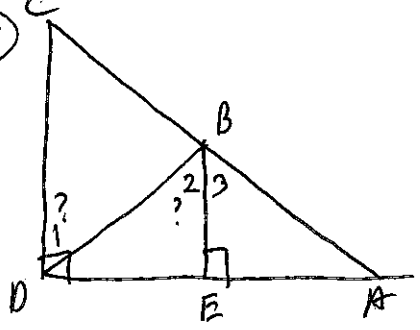
HW #26 Solutions

Orange Book p. 87-88 #25, 26 p. 81 #13
Green Book p. 158 #28

OB p. 88

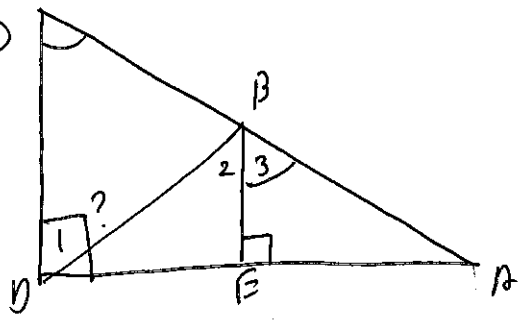
(25)



Given: $\overline{BE} \perp \overline{DA}$
$\overline{CD} \perp \overline{DA}$
Prove: $\angle 1 \cong \angle 2$

Statements	Reasons
1. $\overline{BE} \perp \overline{DA}$	1. Given.
2. $\overline{CD} \perp \overline{DA}$	2. Given.
3. $\overline{BE} \parallel \overline{CD}$	3. If two lines are perpendicular to the same line, then they are parallel. (1, 2)
4. $\angle 1 \cong \angle 2$	4. If two parallel lines are cut by a transversal, then alt. interior angles are congruent. (3).

(26)

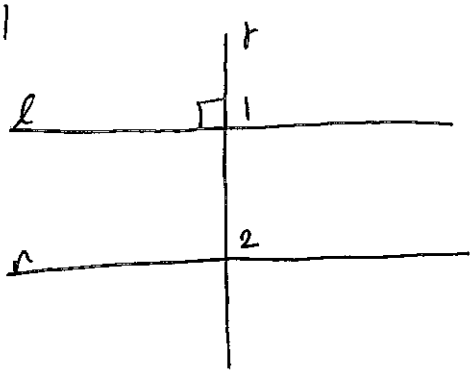


Given: $\angle C \cong \angle 3$
$\overline{BE} \perp \overline{DA}$
Prove: $\overline{CD} \perp \overline{DA}$

Statements	Reasons
1. $\angle C \cong \angle 3$	1. Given.
2. $\overline{BE} \parallel \overline{CD}$	2. If two parallel lines are cut by a transversal so that corresponding angles are congruent, then the lines are parallel. (1, 2)
3. $\overline{BE} \perp \overline{DA}$	3. Given.
4. $\overline{CD} \perp \overline{DA}$	4. If a line is perpendicular to one of two parallel lines, then it is perpendicular to the other. (2, 3)

p. 81

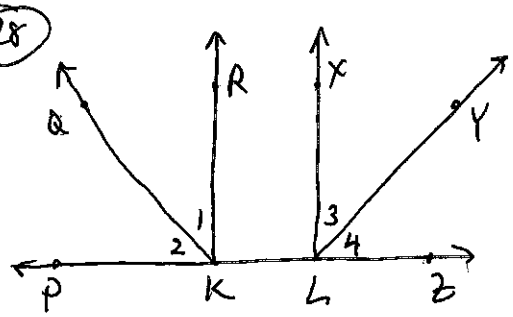
(13)



Given: Transversal t cuts l and n
$t \perp l$, $l \parallel n$
Prove: $t \perp n$

Statements	Reasons
1. $t \perp l$	1. Given.
2. Transversal t cuts l and n.	2. Given.
3. $\angle 1$ is a right angle.	3. Def. of perpendicular lines. (1).
4. $l \parallel n$	4. Given.
5. $\angle 1 \cong \angle 2$	5. If two parallel lines are cut by a transversal, then corresponding angles are congruent. (2, 4).
6. $\angle 2$ is a right angle.	6. All right $\angle$s are congruent. (3, 5).
7. $t \perp n$	7. Def. of perpendicular lines. (6)

(28)



Given: $\overrightarrow{KR} \perp \overline{PZ}$

$m\angle 1 = m\angle 3$

$m\angle 2 = m\angle 4$

Given: $\overline{KR} \parallel \overrightarrow{LX}$

Statements	Reasons
1. $m\angle 1 = m\angle 3$	1. Given.
2. $m\angle 2 = m\angle 4$	2. Given.
3. $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$ —or— $m\angle PKR = m\angle XLZ$	3. Addition Postulate. (1, 2)
4. $\angle PKR \cong \angle XLZ$	4. Def. of congruence. (3).
5. $\overrightarrow{KR} \perp \overline{PZ}$	5. Given.
6. $\angle RKP$ is a right angle.	6. Def. of $\perp$ lines. (5).
7. $\angle XLZ$ is a right angle.	7. Right $\angle$s are $\cong$. (4, 6).
8. $\overrightarrow{XL} \perp \overline{PZ}$	8. Def. of $\perp$ lines. (7).
9. $\overline{KR} \parallel \overrightarrow{LX}$	9. If two lines are $\perp$ to the same line, then they are parallel. (5, 8).