Key

[1] p. 41 WE # 1-5 and p. 49 Self-Test I # 1-8

A#15 [2] p. 67 Chpt Review #1-4 and p. 68 Chpt Test #1-4

[1] p. 41 WE #1-5

1. $4x - 5 = -2$ [Given]
   $4x = 3$ [Add. Prop. of =]
   $x = \frac{3}{4}$ [Div. Prop. of =]

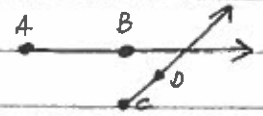
2. $\frac{3a}{2} = \frac{6}{5}$ [Given]
   $3a = \frac{12}{5}$ [Mult. Prop. of =]
   $a = \frac{4}{5}$ [Div. Prop. of =]

3. $\frac{z+7}{3} = -11$ [Given]
   $z + 7 = -33$ [Div. Prop. of =]
   $z = -40$ [Subtr. Prop. of =]

4. $15y + 7 = 12 - 20y$ [Given]
   $35y + 7 = 12$ [Add. Prop. of =]
   $35y = 5$ [Subtr. Prop. of =]
   $y = \frac{1}{7}$ [Div. Prop. of =]

p. 49 Self-Test I #1-8

1. (OS): If $\overline{AB}$ and $\overline{CD}$ intersect, then $\overrightarrow{AB}$ and $\overrightarrow{CD}$ intersect.
   Hyp — Concl.

2. (CS): If $\overrightarrow{AB}$ and $\overrightarrow{CD}$ intersect, then $\overline{AB}$ and $\overline{CD}$ intersect.
   Hyp — Concl.
   This statement is false.
   CE: 

   $\overrightarrow{AB}$ and $\overrightarrow{CD}$ intersect but $\overline{AB}$ and $\overline{CD}$ do not intersect.
   Hyp true — Conc. False

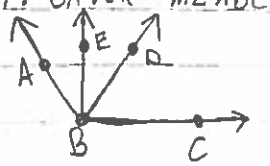
3. Given: $\overline{AB} \cong \overline{CD}$ if $AB = CD$; $\overline{AB} \cong \overline{CD}$ only if $AB = CD$.
   Biconditional: $\overline{AB} \cong \overline{CD}$ iff $AB = CD$.

4. (OS): If $m\angle A$ is less than 100, then $\angle A$ is an acute angle.
   CE: $m\angle A = 95^\circ$ $95^\circ < 100^\circ$ but $\angle A$ is an obtuse angle.
   Hyp. True — Concl. False

5. Given: $m\angle A + m\angle B = 180^\circ$; $m\angle C = m\angle B$
   $m\angle A + m\angle C = 180^\circ$ [Subst. Prop. of =]

6. Given: M is the midpt of $\overline{RT}$; $RM = x$; $RT = 4x - 6$. Find x.
   

   $RM = \frac{1}{2} RT$ [Midpt Thm]
   $x = \frac{1}{2}(4x - 6)$
   $x = 2x - 3$
   $x = 3$

7. Given: $m\angle ABC = 108^\circ$; $\overrightarrow{BD}$ is the bisector of $\angle ABC$; $\overrightarrow{BE}$ is the bisector of $\angle ABD$.
   Find $m\angle EBC$.
   

   [1] $m\angle ABD = \frac{1}{2} m\angle ABC$ [$\angle$ bisector Thm] $m\angle ABD = 54^\circ$
   [2] $m\angle EBD = \frac{1}{2} m\angle ABD$ $m\angle EBD = 27^\circ$
   [3] $m\angle DBC = m\angle ABD$ [$\angle$ bisector Th.] $m\angle DBC = 54^\circ$
   [4] $m\angle EBC = m\angle EBD + m\angle DBC$ [$\angle$ Add. Post.]
   $m\angle EBC = 27^\circ + 54^\circ$
   $m\angle EBC = 81^\circ$

A#15 Continued

Key

8. You can use given information and theorems as reasons in proofs.
Name two other kinds of reasons you can use. [Definitions, Postulates and Properties]

p. 67 Chpt Review #1-4

1. OS: If $m\angle 1 = 120°$ (Hyp), then $\angle 1$ is obtuse. (Concl.)

2. CS: If $\angle 1$ is obtuse (Hyp), then $m\angle 1 = 120°$. (Concl.)

3. CE: $m\angle 1 = 100°$ ... $\angle 1$ is obtuse but $m\angle 1 \neq 120°$.
Hyp True — Concl. False

4. Write a definition of a straight angle as a biconditional.
Answer: An angle is a straight angle if and only if its measure is 180°.

p. 68 Chpt Test #1-4

1. Two angles are congruent (Concl.) if they are vertical angles. (Hyp)
a. Hyp: Two angles are vertical angles.
b. CS: Two angles are vertical angles if they are congruent.

2. OS: If $x^2 > 4$ (H), then $x > 2$ (C).

CE: $x = -3$ $(-3)^2 > 4$ but $-3 < 2$.
Hyp. True — Concl. False

3. Biconditional: Angles are $\cong$ if and only if their measures are $=$.
OS: If 2 $\angle$s are $\cong$, then their measures are $=$.
CS: If 2 $\angle$s have $=$ measures, then the $\angle$s are $\cong$.

4.

Steps	Reasons
1. $y = 12$	1. Given
2. $5x = 2x + y$	2. Given
3. $5x = 2x + 12$	3. Subst. Prop. of $=$ (1 → 2)
4. $3x = 12$	4. Subtr. Prop. of $=$
5. $x = 4$	5. Div. Prop. of $=$