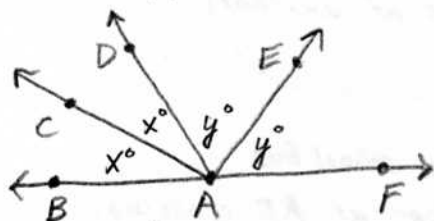


§1.6 #8, 10; §1.7 #5, 7, 10, 14

- §1.6 8. Given: An obtuse \angle is bisected.
Prove: Each of the 2 resulting \angle s is acute;

\parallel proof: Since the given \angle is obtuse, its measure is strictly between 90 and 180 (by def.). When such an angle is bisected, its measure is divided by 2, yielding a result strictly between 45 and 90. Any angle whose measure is >45 and <90 must therefore be acute. \square

10.



Given: \vec{AC} bis. $\angle BAD$
 \vec{AE} bis. $\angle DAF$

Prove: $\angle CAE$ is a rt. \angle

\parallel proof: Let the angles have degree measures of $x, x, y,$ and y as shown. Though x and y are unknown, we do know that $2x + 2y = 180$ since $\angle BAF$ is straight. Therefore, we can divide that equation by 2 to get $x + y = 90$. Since $m\angle CAE = x + y$, and since $x + y = 90$, we know $m\angle CAE = 90$. Therefore, $\angle CAE$ is a rt. \angle [by def. of rt. \angle]. \square

§1.7

5.

a) i) If A, then B. Converse: If B, then A.

b) Truth value of converse: can't say

a) ii) Rain \Rightarrow Wet
(not true: you could use an umbrella!)

Converse: Wet \Rightarrow rain

b)

Truth value of converse: FALSE (ever hear of a swimming pool?)

a) iii) If an \angle is 45° , then it is acute.
(TRUE)

Converse: If an \angle is acute, then it is 45° .

b)

Truth value of converse: FALSE

a) iv) If a pt. is the mdpt. of a seg., then it divides the seg. into $2 \cong$ segs. (true - by def.)

MH
p. 2

Converse:

If a pt. divides a seg. into $2 \cong$ segs., then the pt. is the mdpt. of the seg.

b) Truth value of converse: **TRUE**

7. Given: HHHHH on 5 flips of a [fair] silver dollar.



Document if we are assuming this!

Since the coin has no memory, the odds of another H are also 50:50.

Let B = event that a vehicle is a school bus
 R = event that a vehicle stops at RR crossing.

Given: $B \Rightarrow R$ (If a vehicle is a school bus, it must stop at RR Xing.)
 R (We observe a vehicle that is stopped at RR Xing, telling us that event R is true.)

Prove: B

This is a fallacy! B cannot be proved from the givens! (That would require the converse, $R \Rightarrow B$.)

Even adults who should know better occasionally fall victim to logical fallacies. See, for example, www.washingtonpost.com/ac2/wp-dyn/A48970-2004Jun17 or www.conservapedia.com/Liberal_logic.

	Wendy	Katie	Jody
green lizard	impossible by [1]		
red crocodile	impossible by [3]		impossible by [4]
purple monkey		impossible by [2]	

Note: Mr. Hansen does not necessarily agree with any of the statements in these links. They are merely examples of some adult logical fallacies.

Start here. By process of elimination, Wendy is the purple monkey.
However, that makes the cell in the lower right corner impossible. (If W = purple monkey, $J \neq$ purple monkey.) Thus, Jody is the green lizard, leaving only one possibility for Katie: Katie is the red crocodile.