1 - 7
Logical Reasoning

conditional statements:

"if ___ , then ___"

hypothesis: part with "if"

conclusion: part with "then"

Ex: If 4x + 3 = 27, then x = 6.

$\underset{H}{\underline{4x+3=27}}$, then $\underset{C}{\underline{x=6}}$.

Ex: If $\underset{H}{\underline{\text{it rains}}}$, then $\underset{C}{\underline{\text{we won't go to the park}}}$.

Ex: $\underset{C}{\underline{\text{The Redskins will make the playoffs}}}$ if $\underset{H}{\underline{\text{they have a 7-3 record}}}$.
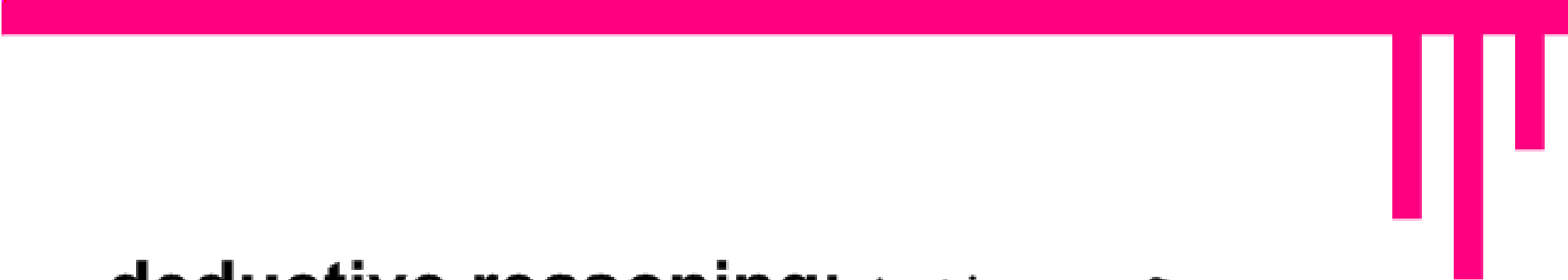
Write a conditional statement.

Ex: I will go to the baseball game
   with you on Saturday.

Ex: For a number x such that
   $6x - 8 = 16$, $x = 4$.

deductive reasoning: using facts, rules, definitions, or properties to reach a conclusion

Determine a valid conclusion that follows from the statement

"If two numbers are odd, then their sum is even."

Ex: The two numbers are (7 and 13)

their sum is even

Determine a valid conclusion that follows from the statement

"If two numbers are odd, then their sum is even."

Ex: The sum of the two numbers is 14.

no conclusion

Special Note

If given H, then C follows.

If given C, can't assume H.

Ex: If it rains, I will stay home.

counterexample: one specific case to show a conditional is false.

Find a counterexample for each conditional statement.

Ex: (If you are using the Internet) then you own a computer.

keep it true

show C is false

I could use the Internet at school

Ex: If the commutative property holds true for multiplication, then it holds true for division.

$2 \cdot 6 = 6 \cdot 2$, but $2 \div 6 \neq 6 \div 2$

Homework:

p. 40 #18, 20, 22, 24-27, 36-43

H, C   if-then   Counter-
example