

## In Summary

### Key Idea

- Inductive and deductive reasoning are useful in problem solving.

### Need to Know

- Inductive reasoning involves solving a simpler problem, observing patterns, and drawing a logical conclusion from your observations to solve the original problem.
- Deductive reasoning involves using known facts or assumptions to develop an argument, which is then used to draw a logical conclusion and solve the problem.

*Hw.???*

*2, 4, 6, 9*


## **HOMEWORK...**

**p. 48: #1 - 13  
(OMIT #5, 8, 10, 11)**

# WHY??? Prove by deduction...

1. Grab a calculator. (you won't be able to do this one in your head) ?
2. Key in the first three digits of your phone number (NOT the area code) .
3. Multiply by 80
4. Add 1
5. Multiply by 250
6. Add the last 4 digits of your phone number ?
7. Add the last 4 digits of your phone number again.
8. Subtract 250
9. Divide number by 2

Do you recognize the answer?



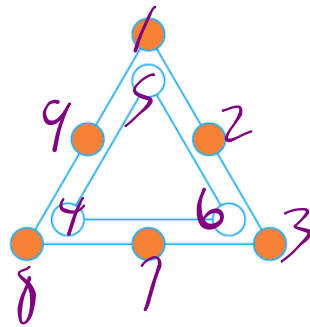
$$80(100a + 10b + c)$$

$$250[8000a + 800b + 80c + 1]$$

$$2000000a + 200000b + 20000c + 250 - 250$$

$$+ 2000d + 200e + 20f + 2g$$

2. Copy this diagram. Place the digits 1 through 9 in the circles so that the sum of the numbers on the outside triangle is double the sum of the numbers on the inside triangle. Explain whether more than one solution is possible.



5  
 4 6  
 3 9 2 7  
 1 8

$$1+2+3+4+5+6+7+8+9 = 45$$

30 + 15  
 ↑ outside ↑ inside

4. a) Substitute numbers for the letters to create an addition problem with a correct answer.  
 b) How many solutions are possible?

#1	①	#2	2	#3
y	333	666	666	3
xxx	333	666	666	999
xxx	333	666	666	999
xxx	333	666	666	999
+ xxx	+ 333	+ 666	+ 666	+ 999
<hr style="width: 100px; margin-left: 0;"/>	yxxx	2666	2666	<hr style="width: 100px; margin-left: 0;"/>
	①333			3999

6. A farmer wants to get a goat, a wolf, and a bale of hay to the other side of a river. His boat is not very big, so it can only carry him and one other thing. If the farmer leaves the goat alone with the bale of hay, the goat will eat the hay. If he leaves the wolf alone with the goat, the wolf will eat the goat. When the farmer is present, the goat and the hay are safe from being eaten. How does the farmer manage to get everything safely to the other side of the river?



- ① G →
- ② H →
- ③ G ←
- ④ W →
- ⑤ G →



Q R K


9. Bob, Kurt, and Morty are football players. One is a quarterback, one is a receiver, and one is a kicker. The kicker, who is the shortest of the three, is not married. Bob, who is Kurt's father-in-law, is taller than the receiver. Who plays which position?

	Q	R	K	S	m	L
B	✓	x	x			
K		✓	x	x		
M			✓			
S	x	x	✓			
m		✓	x			
L	✓		x			

Bob Kurt Morty

- Kicker is shortest

# **HOMEWORK...**

 Logic Problems and Puzzles.pdf

**Quiz on Chp. 1 - Thursday!**

## Attachments

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Logic Problems and Puzzles.pdf