

# POW Solutions

## Crossing An Old Bridge With Only One Flashlight

The key is to send the slow people together then have the fast ones bring it back.

Ellen and Larry	→	2 min
Larry	←	2 min
Harold and Sue	→	10 min
Ellen	←	1 min
Ellen and Larry	→	2 min

Altogether this takes 17 minutes

## Beads Under The Cloud

There is a pattern. Black beads increase by 1 and white beads by 2 times the previous in each segment of the pattern. The key is to look at the last strand of black beads to see how many segments of the pattern are missing. Since 4 black beads are shown before the cloud and 7 after we know the segments with 5 and 6 are hidden. That means there are 11 black beads hidden. The last FULL strand of white beads shown is 8 long or  $2^3$ . That means  $2^4$ ,  $2^5$ , and  $2^6$  are still hidden minus a few at the ends (2 on one end, 5 on the other). Therefore there are  $(2^4+2^5+2^6)-7$  or 105 white beads hidden. All together there are 116 beads hidden under the cloud.

## Liars

	M	T	W	H	F	S	SUN
A	L	L	L	T	T	T	T
B	T	T	T	L	L	L	T
A says: lied yest.	*			*			
B says lied yest.				*			*
A says truth yest.		*	*		*	*	*
B says truth yest.	*	*	*		*	*	

So, both will say they lied yesterday on Thursday only.

Both will say they told the truth yesterday on Tuesday, Wednesday, Friday, Saturday.

## Yogurt shop.

Work a smaller problem.

If you have 1 topping you can have it 2 ways P T  
 If you have 2 you can have it 4 ways P T TR R  
 If you hve 3 you can have it 8 ways P T,R,Q TR,TQ,RQ, TRQ

One begins to see powers of 2 here.  $2^3 = 8$   
 So with 6 toppings it should be  $2^6 = 64$

## Ghost, the Rabbit

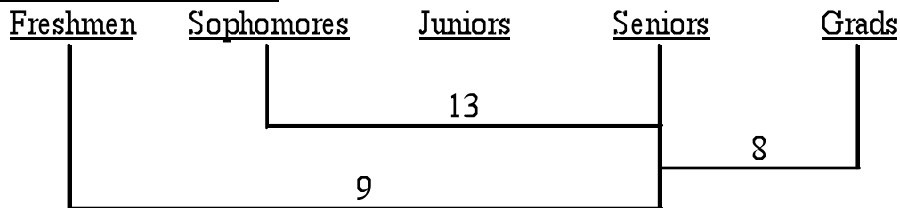
Start with fewer than ten steps and work up. A pattern develops.

One step	1	1
Two steps	1-1 or 2	2
Three steps	1-1-1 or 1-1-2 or 1-2-1 or 2-1-1	3
Four steps	1-1-1-1 or 2-1-1 or 1-2-1 or 1-1-2 or 2-2	5
Five steps	1-1-1-1-1 or 2-1-1-1 or 1-2-1-1 or 1-1-2-1 or 1-1-1-2 or 2-2-1 or 2-1-2 or 1-2-2	8

At this point, ones feels a Fibonacci sequence forming, thus six is  $5+8 = 13$ , seven is 21, eight is 34, nine is 55 and ten is 89.

There are 89 ways for the rabbit to go up the stairs.

**THE COMMITTEE:** Make a list Check to see that all conditions are satisfied:



Freshmen	Sophomores	Juniors	Seniors	Grads	Total
5	9	1	4	4	23
1	5	9	8	0	23
4	8	3	5	3	23
6	10	0	3	5	24
2	6	5	7	1	21
6	10	5	3	5	29
1	5	5	8	0	19
3	7	5	6	2	23

Only the last row satisfies all of the conditions.