

Below are all the possibilities conforming to the conditions of the problem, namely that:

All of their drives are positive non-zero integers in hours

Judith's drive \angle Penelope's drive \angle Ruth's drive \angle Virginia's drive

The sum of their driving times is less than 18 hours

Judith (h)	Penelope (h)	Ruth (h)	Virginia (h)	Sum (h)	Product (room #)
1	2	3	4	10	24
1	2	3	5	11	30
1	2	3	6	12	36
1	2	3	7	13	42
1	2	3	8	14	48
1	2	3	9	15	54
1	2	3	10	16	60
1	2	3	11	17	66
1	2	4	5	12	40
1	2	4	6	13	48
1	2	4	7	14	56
1	2	4	8	15	64
1	2	4	9	16	72
1	2	4	10	17	80
1	2	5	6	14	60
1	2	5	7	15	70
1	2	5	8	16	80
1	2	5	9	17	90
1	2	6	7	16	84
1	2	6	8	17	96
1	3	4	5	13	60
1	3	4	6	14	72

1	3	4	7	15	84
1	3	4	8	16	96
1	3	4	9	17	108
1	3	5	6	15	90
1	3	5	7	16	105
1	3	5	8	17	120
1	3	6	7	17	126
1	4	5	6	16	120
1	4	5	7	17	140
2	3	4	5	14	120
2	3	4	6	15	144
2	3	4	7	16	168
2	3	4	8	17	192
2	3	5	6	16	180
2	3	5	7	17	210
2	4	5	6	17	240

We can assume that Willard, in his visit to their room and in his note taking, has observed their room number and has taken it into his calculations. He then asks the girls whether or not one of them has only one hour to drive, and they respond, giving him the final clue he needs to figure out their driving situation. The only person who could drive only one hour is Judith. If any of the other girls were to drive only one hour, then the girls below them would have to drive zero or negative hours, which violates the prompt and basic physics. With the knowledge of whether or not there was a one, it doesn't narrow our possibilities too much. When Willard learned this information, it solved the whole problem. This is because he knew the room number. Therefore if we look at common room numbers between the set of numbers where Judith drives 1 hour and where she drives 2 hours, we can see that the only common room number (product) is 120. There are three sets of numbers that result in this room number: (1,3,5,8), (1,4,5,6), and (2,3,4,5). Because Willard immediately knew which set it was after the girls answered whether or not there was a one, we know that they answered no, because there are multiple solutions involving a one and only one without. Had

they said that in fact one of them was only driving for one hour, there would be two possible solutions and Willard would not have deduced a single answer.

Therefore, Judith takes two hours to drive home, Penelope three hours, Ruth four hours, and Virginia five hours. As mentioned above, the room number must be one hundred twenty.