

NRich Snake Coils. Tuesday 6 June, 2023. Mary Murray. Age 8.

Imagine a 600 cm snake that coils into a circle, but he's not going to eat himself.



He is going to coil himself around to make a double circle, then a treble circle and so on until he is coiled round like this rope.



Challenge

Once in a circle how much further will he have to slither to make a double circle of his body?

300cm.

What's this length as a fraction of his total length?

One half.

How much further will he have to slither to make three circles of his body?

100cm.

What's this length as a fraction of his total length?

One sixth.

How much further will he have to slither to make four circles of his body?

50cm.

What's this length as a fraction of his total length?

One twelfth.

How much further will he have to slither to make five circles of his body?

30cm.

What's this further length as a fraction of his total length?

One twentieth.

When the snake has slithered a total of 550cm along his body length, making smaller and smaller circles of his body, how many circles will there be?

There will be 12 circles.

Number of coil	Length of each coil, cm	Distance to slither, cm	Sum of slithers, cm
n	600/n		
1	600		
2	300	300	
3	200	100	400
4	150	50	450
5	120	30	480
6	100	20	500
7	85.71428571	14.28571429	514.2857143
8	75	10.71428571	525
9	66.66666667	8.333333333	533.3333333
10	60	6.666666667	540
11	54.54545455	5.454545455	545.4545455
12	50	4.545454545	550

The end.