Number of pegs: 2

1. r2 = r1/2
2. r1 = d1 - r1 / 2
3. r1 = (2(d1))/3

Number of pegs: 3

1. r3 = r1 / 2
1. r2 = d2 - (r3)
2. r2 = d2 - r1 / 2
3. r1 = d1 - (d2 - r1 / 2)
4. r1 = d1 - d2 + r1 / 2
5. r1 = 2 (d1 - d2)

Number of pegs: 4

1. r4 = r1 / 2
2. r3 = d3 - r1 / 2
3. r2 = d2 - (r3)
4. r2 = d2 - (d3 - r1 / 2)
5. r2 = d2 - d3 + r1 / 2
6. r1 = d1 - (r2)
7. r1 = d1 - (d2 - d3 + r1 / 2)
8. r1 = d1 - d2 + d3 - r1 / 2
9. 3r1/2 = d1 - d2 + d3
10. 3r1 = 2 (d1 - d2 + d3)
11. r1 = (2 (d1 - d2 + d3)) / 3

Number of pegs: 5

1. r5 = r1 / 2
2. r4 = d4 - r1 / 2
3. r3 = d3 - (d4 - r1 / 2)
4. r3 = d3 - d4 + r1 / 2
5. r2 = d2 - (r3)
6. r2 = d2 - (d3 - d4 + r1 / 2)
7. r2 = d2 - d3 + d4 - r1 / 2
8. r1 = d1 - (r2)
9. r1 = d1 - (d2 - d3 + d4 - r1 / 2)
10. r1 = d1 - d2 + d3 - d4 + r1 / 2
11. r1 = 2(d1 - d2 + d3 - d4)

Even Odd Patterns:

Even amount of gears: add a times 2 in front and a divided by 3 on the end
Odd amount of gears: add a times 2 in front

Increasing Patterns:

Adding Distances: Each time a peg is added, you just add a distance inside the parenthesis with the proper sign
Sign Changes: The sign just alternates between positive and negative for each peg (distance) you add.