Geometric Sequences

- Repeated Multiplication by a Constant ratio to get from one term to the next
- Graph is a CURVE (rate of change changes by CONSTANT FACTOR)
- Repeated multiplication ⇒ rewritten as an EXPONENT
  ex $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 2^5$

Example:

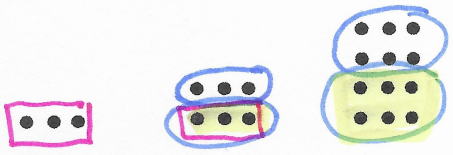


Figure 1 | Figure 2 | Figure 3

3 | $3 \cdot 2$ | $(3 \cdot 2) \cdot 2$

The # of dots DOUBLE the previous amount

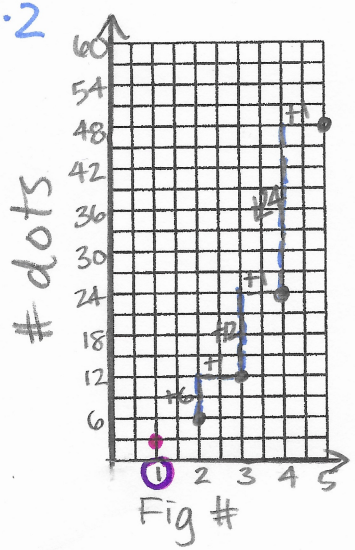
$r = \frac{f(n)}{f(n-1)}$

Fig #	#dots	difference
1	3	
2	6	+3
3	12	+6
4	24	+12
5	48	+24

$r = \frac{12}{6} = 2$

$r = \frac{48}{24} = 2$

↑ RATE IS doubling



*Rate of change DOUBLES as figure # increases.

Recursive Formula:

$d(1) = 3;\ d(n) = d(n-1) \cdot 2$

3 dots in 1st figure | # dots in any figure n | is | # dots in the PREVIOUS figure | DOUBLED

Explicit Formula:

$d(n) = 3(2)^{n-1}$

# of dots in any figure, n | Start w/ 3 | & Multiply by 2 | for every figure after the 1st