Warmup

Create the explicit and recursive formulas

1) 7, 21, 35...

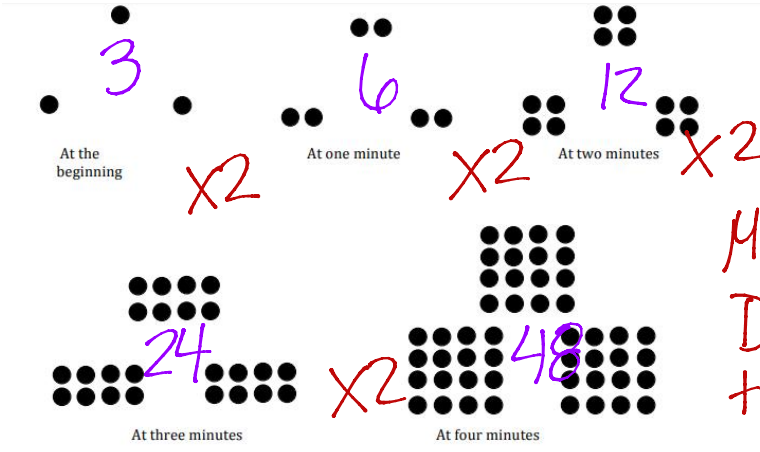
+14 +14

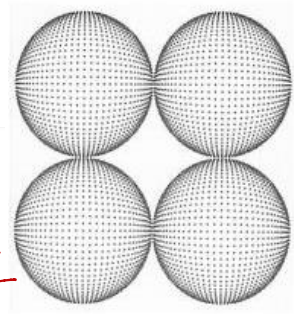
$d = 14$

2) $a_4 = 10$ $a_7 = 25$

Growing, Growing Dots

A Develop Understanding Task





Multiply by 2
Double
times 2
Geometric
*Multiply

1. Describe and label the pattern of change you see in the above sequence of figures.

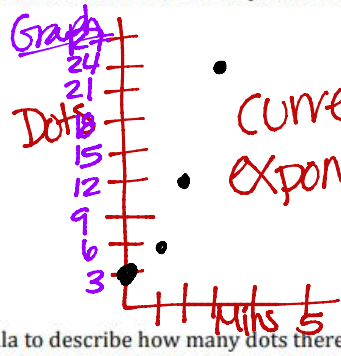
x2

2. Assuming the sequence continues in the same way, how many dots are there at 5 minutes?

96 dots

Mins X	Dots Y
0	3
1	6
2	12
3	24
4	48
5	96

Graph



curve
exponential

Equation

Exp $A_n = A_1(r)^{n-1}$

Rec: $A_n = r(A_{n-1})$

A_1 = #

A_1 = 1st term

3. Write a recursive formula to describe how many dots there will be after t minutes.

$A_1 = 6$ $A_n = 2(A_{n-1})$

Whatever just happened, multiply by 2

previous term

r = constant ratio (Multiply)

4. Write an explicit formula to describe how many dots there will be after t minutes.

$A_n = 6(2)^{n-1}$ *n-1 in air b/c we multiply

* Find # dots after 96 mins

29

$6(2)^{96-1} = 2.37681875 \times 10$

2.37681875000000000000000000

$6(2)^{30-1} = 3221225472$

4, 12, 36, ...

×3 $r=3$ $A_1=4$

Exp: $A_n=4(3)^{n-1}$

Rec: $A_1=4$

$A_n=3(A_{n-1})$

$\frac{1}{3}$, 1, 3, 9, 27, ...

$r=\times 3$ $A_1=\frac{1}{3}$

Exp: $A_n=\frac{1}{3}(3)^{n-1}$

Rec: $A_1=\frac{1}{3}$

$A_n=3(A_{n-1})$