Recursive Formula

a_1	a_2	a_3	a_4	a_5
-2	10	-26	82	-242

a_n - any #

a_{n-1} = the preceding number (the number before)

Rule:

$$-3(a_{n-1})+4$$

looking for the second term: a_n Term 2

$$2 = -3(-2)+4$$ (-2 is a_{n-1})

$6+4$

10

3rd term

$$3 = -3(10)+4$$

$-30+4$

-26

4th term

$$a_4 = 4 = -3(-26)+4$$

5th term

$$a_5 = 5 = -3(82)+4$$

$-246+4$

-242

The first term is 2: $a_1 = 2$

Rule: take the preceeding term + 2

$a_n = a_{n-1} + 2$

a_1 a_2 a_3 a_4 a_5

2, 4, 6, 8, 10

+2 +2 +2 +2

arithmetic sequence $a_n = a_{n-1} + d$

3rd term = 2nd term + common difference

$= 4 + 2$

$a_3 = 6$

$a_1 = 7$ $\quad 3a_{n-1} - 12$ preceding term

7, 9, 15, 33, 87

a_1	a_2	a_3	a_4	a_5
7	9	15	33	87

arithmetic sequence

$a_n = a_{n-1} + d$

$n \geq 2$ $\quad a_n = (-3)a_{n-1} + 4$

$-2, 10, -26, 82, -242$

geometric sequence + arithmetic sequence

$r = -3$ $\quad d = +4$

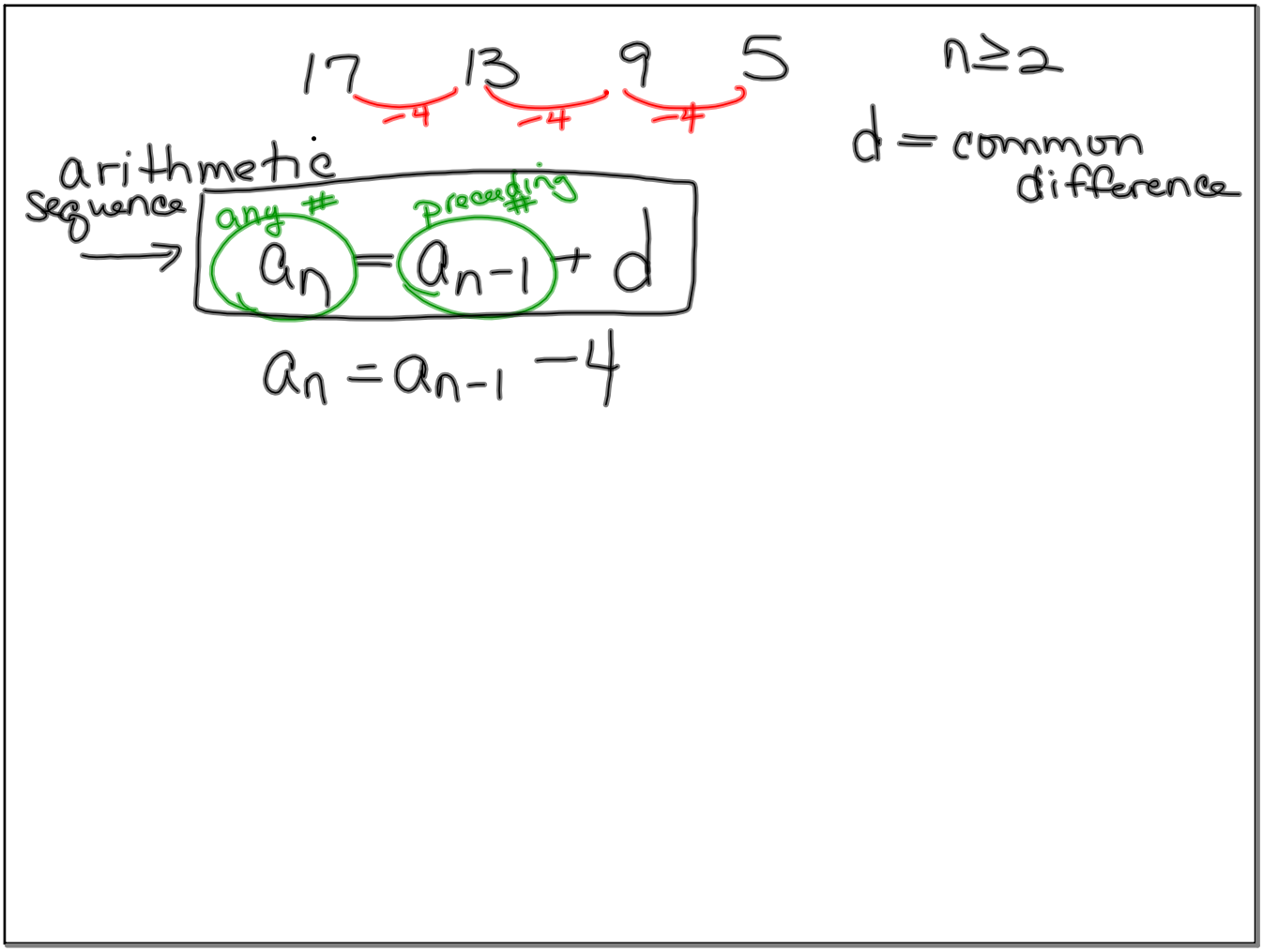
$\times(-3)$ $\quad +4$

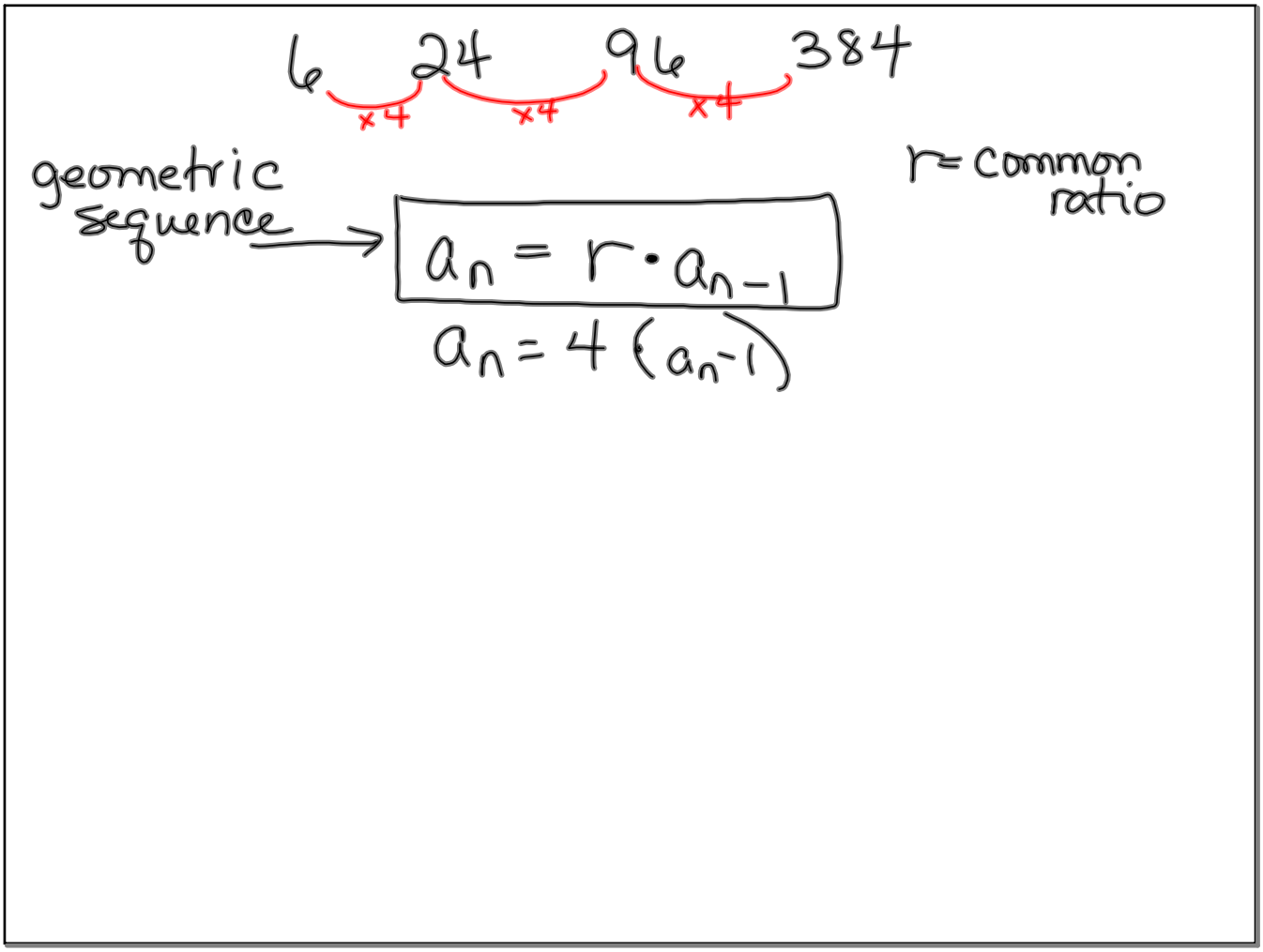
$a_1 = 16 \quad a_n = a_{n-1} - 3 \quad n \geq 2$

16, 13, 10, 7, 4, 1

arithmetic

$a_n = a_{n-1} - 3$


17 13 9 5
-4 -4 -4
n≥2
d = common difference
arithmetic sequence
any # preceding #
$a_n = a_{n-1} + d$
$a_n = a_{n-1} - 4$


6 24 96 384
×4 ×4 ×4
geometric sequence →
$a_n = r \cdot a_{n-1}$
r = common ratio
$a_n = 4(a_n - 1)$

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4, 10, 25, 62.5

×2.5 ×2.5 ×2.5

geometric sequence

$a_n = r(a_{n-1})$

$a_n = 2.5(a_{n-1})$

1.) 22, 16, 10, 4 (−6, −6, −6)

$a_1 = 22$ $a_n = a_{n-1} + d$ $n \geq 2$

$a_n = a_{n-1} - 6$

4.) 243 $\underset{\div 3}{\frown}$ 81 $\underset{\div 3}{\frown}$ 27 $\underset{\div 3}{\frown}$ 9

geometric sequence

$a_n = r(a_{n-1})$ $n \geq 2$

$a_n = \frac{1}{3}(a_{n-1})$

6.) 8, −20, 50, −125

×−2.5 ×−2.5 ×−2.5

geometric sequence

$a_n = r \cdot a_{n-1}$

$a_n = -2.5(a_{n-1})$