

Warmup

The Army is accepting Christmas gifts for kids in need. Their goal is to take 500 toys in one day. The Army only receives 3 toys on the first day. However, on the 3rd day they receive 27.

How many toys are there in the first 4 days?

What would be the explicit and recursive formula for this?

Will they reach their goal by day 6? How many toys will they take that day?

Geometric Meanies

A Practice Understanding Task



Each of the tables below represents a geometric sequence. Find the missing terms in the sequence, showing your method.

Table 1

x	1		2		3
y	3		6		12

2 jumps
EVEN # jumps

Is the missing term that you identified the only answer? Why or why not?

+2 or -2 will both get 12.

Table 2

x	1		2		3		4
y	7		35		175		875

3 jumps
ODD #

Are the missing terms that you identified the only answers? Why or why not?

only +5 works

Table 3

x	1		2		3		4		5
y	6		12		24		48		96

Are the missing terms that you identified the only answers? Why or why not?

+2 or -2 work

4 jumps
EVEN

Table 4

x	1		2		3		4		5		6
y	4		12		36		108		324		972

Are the missing terms that you identified the only answers? Why or why not?

No, -3 would give -972

$$r^5 = \frac{972}{4}$$

$$\sqrt[5]{r^5} = \sqrt[5]{243}$$

$$r = 3$$

$$\sqrt{r^2} =$$

Calculator

5 ^{2nd} x [□]

$$\sqrt[5]{243}$$

A. Describe your method for finding the geometric means.

Guess & Check

- ① Last term divide by first term
- ② Count # jumps $\rightarrow r$ \square
 \hookrightarrow exponent of r
- ③ Calculate $\sqrt[\#]{\frac{\text{last term}}{\text{first term}}}$

B. How can you tell if there will be more than one solution for the geometric means?

If you can multiply by a $-$,
it must have an EVEN #
of jumps.

Both $+$ and $-$
ratio.

Given the following recursive formulas, create the GEOMETRIC explicit formulas

$$\begin{aligned} a_n &= a_{n-1} \cdot 2 \\ a_1 &= 2 \end{aligned}$$

$$2(2)^{n-1}$$

$$\begin{aligned} a_n &= a_{n-1} \cdot 3 \\ a_1 &= -3 \end{aligned}$$

Given two terms in a geometric sequence find the 8th term and the recursive formula.

23) $a_4 = -12$ and $a_5 = -6$

24) $a_5 = 768$ and $a_2 = 12$

25) $a_1 = -2$ and $a_5 = -512$

26) $a_5 = 3888$ and $a_3 = 108$