

1. Arithmetic Sequences: Use the following explicit formula to find the following: $y = -2x + 2$

a. How can you tell the above equation will form an arithmetic sequence?

It's linear.

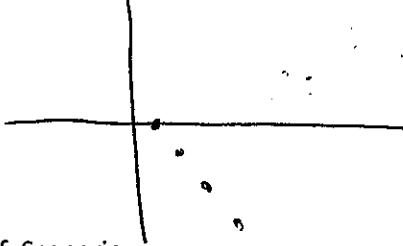
b. Recursive Formula: $f(1) = 0, f(x) = f(x-1) - 2$

c. Sequence: arithmetic; 0, -2, -4, -6, -8

d. Table

X	Y
1	0
2	-2
3	-4
4	-6

e. Graph:



f. Scenario

I have no money and lose \$2 each day.

2. Geometric Sequences: Use the following recursive formula to find the following: $f(1) = 1, f(x) = f(x-1) \times 4$

a. How can you tell the above equation will form a geometric sequence?

multiplying 4 everytime

b. Explicit Formula: $f(x) = 4^{x-1}$

c. Sequence: 1, 4, 16, 64

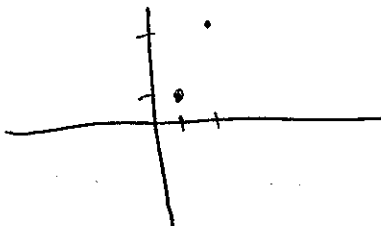
d. Table

X	Y
1	1
2	4
3	16
4	64

e. Scenario:

I start with \$1 and my money quadruples every day

f. Graph



3. Summation: $\sum_{x=1}^6 6(2^{x-1}) = 6 + 12 + 24 + 48 + 96 + 192 = 378$

$6(2^{1-1}) = 6$ $6(2^{3-1}) = 24$ $6(2^{5-1}) = 96$
 $6(2^{2-1}) = 12$ $6(2^{4-1}) = 48$ $6(2^{6-1}) = 192$

~~OMG~~
~~(Fast Plus)~~

4. Fill in the missing terms.

a. Arithmetic Sequence

x	1	2	3	4	5	6
f(x)	-31	-24.6	-18.2	-11.8	-5.4	1

Common difference: 6.4

$-31 + 5d = 1$
 $5d = 32$
 $d = 6.4$

b. Geometric Sequence

x	1	2	3	4	5	6
f(x)	160	80/-80	40/40	20/-20	10	5/-5

Common ratio: $\pm \frac{1}{2}$

$\frac{160 \cdot r^4}{160} = \frac{10}{160}$

$\sqrt[4]{r^4} = \sqrt[4]{\frac{1}{16}}$
 $r = \pm \frac{1}{2}$

5. You come into school and tell your best friend a secret. You told her not to tell anyone but she couldn't keep it to herself, she told three other friends, but told them not to tell anyone. Well, each of those friends decided they couldn't keep it in and each told three other friends. This pattern keeps forming.

What type of sequence is this? geometric

Write an explicit formula: $f(x) = 3^{x-1}$

Write a recursive formula: $f(x) = f(x-1) \cdot 3, f(1) = 1$

x	y
1	1
2	3
3	9
4	27

How many people will be told on day 6? (should you use recursive or explicit for this?)

$f(6) = 3^{6-1} = 3^5 = 243$

Give the first 5 terms of the sequence (should you use recursive or explicit for this?)

1, 3, 9, 27, 81

Use summation notation to solve. What is the total number of people that will know the secret on day 40?

$\sum_{n=1}^{40} 3^{x-1}$

~~OMG~~

(we don't know how to solve with geometric)

OMG, everyone knows!

~~OMG~~