Answer Key:

1.) r=-6
2.) Not geometric
3.) Not geometric
4.) R=5
5.) R=2
6.) R=-5
7.) $a_n = (1)3^{n-1}$
8.) $a_n = -2.5(-4)^{n-1}$
9.) $a_n = 2(\frac{1}{4})^{n-1}$
10.) $a_n = -4(3)^{n-1}$
11.) 1, -6, 36, -216, 1296, -7776
12.) 2, -4, 8, -16, 32, -64
13.) 39364
14.) -170
15.) 63
16.) 52429
17.) n=3
18.) n=6
19.) n=4 ← #'s don't work nice skip.
20.) n=6

Yellow

Geometric Series & Sequences.

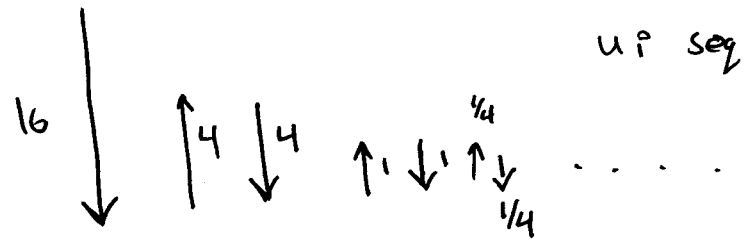
Sequence: is a group of order numbers where the next term is found by multiplying by the common ratio.

Series : Is the sum of all the terms in the sequence

Pink

Down seq: $16, 4, 1, 1/4, \ldots$

up seq : $4, 1, 1/4, 1/16, \ldots$



a) 1st rebound is 4 each "up" is 1/4 the previous height

$$a_6 = 4 \cdot \left(\frac{1}{4}\right)^{6-1} = 4 \cdot \left(\frac{1}{4}\right)^5 = \frac{1}{4^4} = \boxed{\frac{1}{256}}$$

b) Total Down $16 + 4 + 1$ ← total : 7 terms

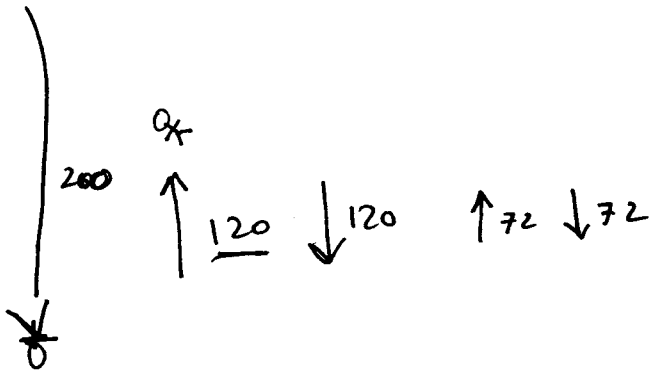
$$S_7 \quad \frac{16 - 16\left(\frac{1}{4}\right)^7}{1 - 1/4} = 21.33203$$

Total up $4 + 1 + 1/4 + \cdots$ ← total : 6 terms we don't count ~~it the first~~ bounce up on 7 touch

$$\frac{4 - 4\left(\frac{1}{4}\right)^6}{1 - 1/4} = 5.333007$$

Total distance = 26.66503781

Green



How far has bungee jumper traveled upward.

on the 9th rebound $a_n = a_1 r^{n-1}$

$$a_7 = 120 \cdot (0.6)^{7-1} = \boxed{5.59872 \text{ ft}}$$

If we want total distance of all up travel

$$S_7 = \frac{120 - 120(0.6)^7}{1 - 0.6} = \boxed{291.60192 \text{ ft}}$$

Blue

18 year deposits of ₦ 1,000 while interest is compounded annually at 3.2%

year 1 = 1,000

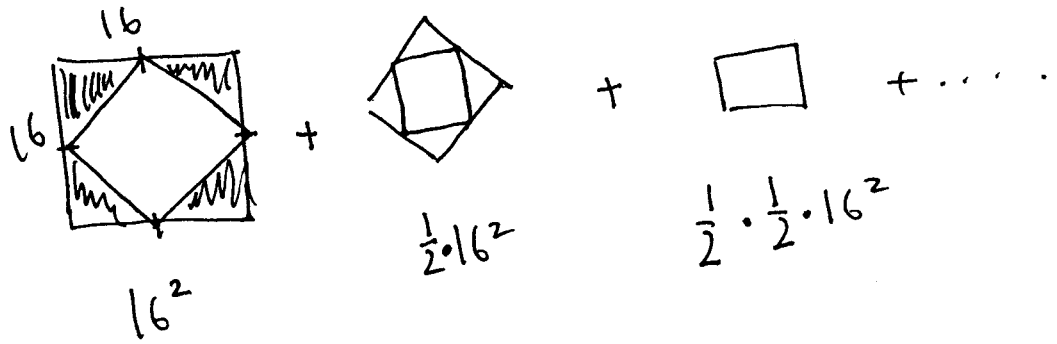
year 2 = $1{,}000 \cdot (1.032) + 1000 = 2032$

year 3 = $2032 \cdot (1.032) + 1000 = 3097.024$

year 4 = $3097.024 (1.032) + 1000 = 4196.128768$

year 5 = $4196.1287 (1.032) + 1000 = 5330.404889$

White



$$S_{10} = \frac{16^2 - 16^2\left(\frac{1}{2}\right)^{10}}{1 - 1/2} = \boxed{511.5 \text{ units}^2}$$