Investigating a Movie Contract

Name Master E
Date _____ Block _____

Suzette Starlet is a popular movie star. One major studio was so anxious to get her to sign a contract with them, that they offered her a choice of three salary options. You are her agent and, as such, you earn a percentage of her income from each deal that you help her sign. It is your job to determine which contract would be the best to accept.

Option A: $20 for the first day of work, but overall earnings double for each additional full day of work.
This means that she will make ...
$20 for a 1 day contract
$40 for a 2 day contract
$80 for a 3 day contract, etc...

Option B: Two cents for the first day of work, but overall earnings triple for each additional full day of work.
This means that she will make ...
$0.02 for a 1 day contract
$0.06 for a 2 day contract
$0.18 for a 3 day contract, etc...

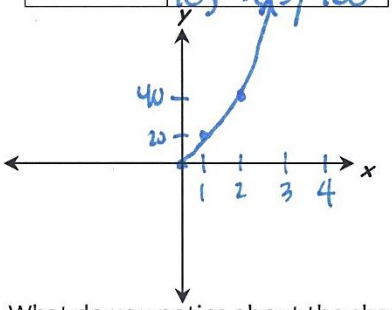
Option C: A flat rate of $100,000 per day for as many full days as the movie is being shot.
This means that she will make ...
$100,000 for a 1 day contract
$200,000 for a 2 day contract
$300,000 for a 3 day contract, etc...

1. Without analyzing the options, which option would you instinctively choose? C

2. Fill in the table for each option and sketch a graph for each sequence below.

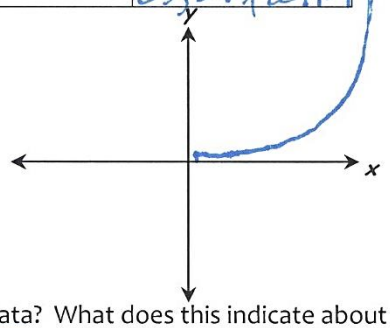
Option A

number of days (x)	overall earnings (y)
1	20
2	40
3	80
4	160
5	320
10	10,240
12	40,960
14	163,840
16	655,360
20	10,485,760



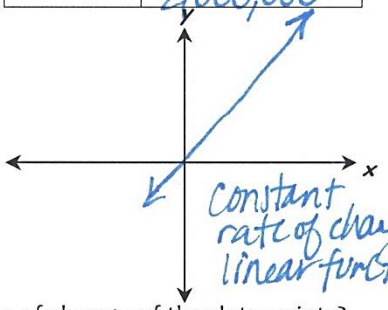
Option B

number of days (x)	overall earnings (y)
1	.02
2	.06
3	.18
4	.54
5	1.62
10	393.66
12	3542.94
14	31,886.46
16	286,978.14
20	23,245,229.34



Option C

number of days (x)	overall earnings (y)
1	100,000
2	200,000
3	300,000
4	400,000
5	500,000
10	1,000,000
12	1,200,000
14	1,400,000
16	1,600,000
20	2,000,000



3. What do you notice about the shape of the data? What does this indicate about the rate of change of the data points?
The data is curved, which means that the rate of change is not constant

4. Write a function for each option.
Option A: $f(x) = 10 \cdot 2^x$ Option B: $f(x) = \frac{1}{150} \cdot 3^x$ Option C: $f(x) = 100{,}000x$

5. What would the earnings be under each option if the movie took 23 days to shoot?
Option A: $83,886,080 Option B: $627,621,192.20 Option C: $ 2,300,000

6. After further investigation, which contract would you recommend that Suzette accept and why?
B! It is growing at a faster rate!