

Algebra 8-3: Comparing Constant Increase & Exponential Growth



Warm-Up

1. Seth told Joey that a small bug, which weighs .05 of an ounce, will double its weight every day for two weeks. Should Joey believe Seth? Why or why not?

Exponential growth

$y = bg^x$
 $y = (.05)(2)^{14} = 819.2 \text{ oz} \approx 51.2 \text{ pounds}$

No! it would not weigh

Vocab

Definition

Graph

Exponential Growth

$y = bg^x$

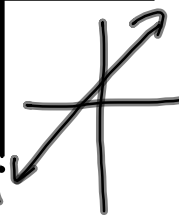
y ← New amount
 b ← Starting amt
 g ← growth rate
 x → time



Constance Increase

$y = mx + b$

m ← Slope / rate of change / constant increase or decrease
 b ← Starting point / y-intercept



Two Ways to Compare

1. Graphs
2. Table

Examples

1. Which is the better savings plan?

Plan A: You have \$5 and save \$2 a day.

Plan B: You have \$5 and save 10% of the money you had the previous day

constant increase
linear: $y = mx + b$

$y = 2x + 5$ $y = 5(1.1)^x$

rate of growth
110% = 1.1
Exponential: $y = bg^x$

Day	Plan A	Plan B
0	5	5
4	13	7.32
8	21	10.72
12	29	15.69
16	37	22.97
20	45	33.63
24	53	49.25
28	61	72.10
32	69	105.56

