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	$y = bg^x$ (x → time; b: starting amt; g: growth rate; y: new amount)	
Constance Increase	$y = mx + b$ (b: starting point, y-intercept; m: slope / rate of change / constant increase or decrease)	

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. constant increase

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

linear: $y = mx + b$

Exponential: $y = b^x$

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

rate of growth

110% = 1.1

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