Notes: Linear Growth using Tables

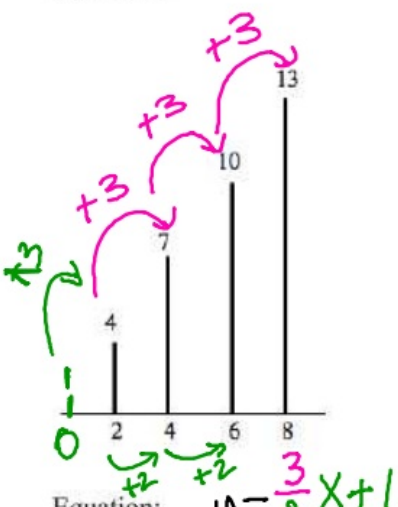
slope – intercept form of a line : $y = m \cdot x + b$

in other words . . . y = ***(rate of change)***x + ***beginning***

Review Linear Growth using Block Patterns

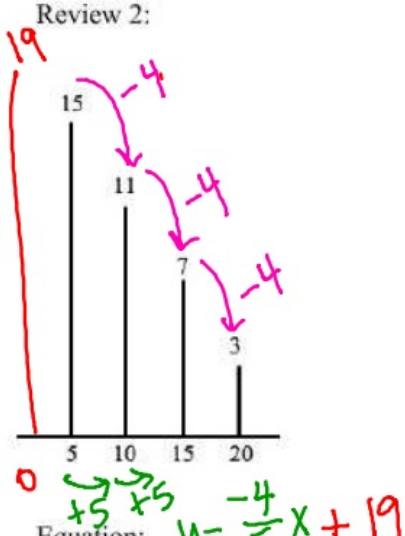
Write equations in the form of $y = m \cdot x + b$

Review 1:



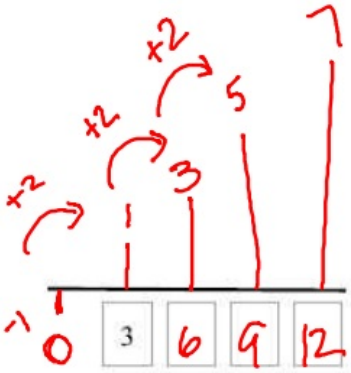
Equation: $y = \frac{3}{2}x + 1$

Review 2:



Equation: $y = \frac{-4}{5}x + 19$

Review 3:



Equation: $y = \frac{2}{3}x - 1$

Example 1:

time (hours) horizontal	Cost (dollars) vertical
0	100
1	150
2	200
3	250
4	300
5	350
6	400

+1 +1 +1 +50 +50

Paul's plumbing charges \$100 for a service call and \$50 for each hour of work. Create a table of values showing possible charges for a service calls lasting from 0 to 6 hours.

Rate of change (***m***) ? $\frac{50 \text{ dollars}}{1 \text{ hour}}$

$\frac{y \text{ change}}{x \text{ change}}$ or $\frac{\text{vertical change}}{\text{horizontal change}}$

Beginning value - step 0 (***b***) ? 100

Write an equation $y = \mathbf{m}x + \mathbf{b}$ to represent the pattern $y = \frac{50}{1}x + 100$

$C = \frac{50}{1}h + 100$

Example 2:

time (seconds)	snowballs
0	50
5	48
10	46
15	44
20	42
25	40
30	38

×5 ×5 -2 -2

You have a pile of 50 snowballs. In a snowball fight you throw the snowballs at a rate of 2 snowballs every 5 seconds. Create a table of values showing how many snowballs you have over a 30 second period.

(Count by something other than 1)

Rate of change (***m***) ? $\frac{-2 \text{ snowballs}}{5 \text{ seconds}}$ $\frac{y \text{ change}}{x \text{ change}}$ or $\frac{\text{vertical change}}{\text{horizontal change}}$

Beginning value - step 0 (***b***) ? 50

Write an equation $y = \mathbf{m}x + \mathbf{b}$ to represent the pattern $y = -\frac{2}{5}x + 50$

$SN = -\frac{2}{5}s + 50$

Example 3:

$10 \times .20 = 2.00$

texts	cost
0	\$20
10	22
20	24
30	26
40	28
50	30
60	32

+10 +10 +10 +2 +2

Your cell phone plan costs \$20 each month. For each text you send it costs \$0.20. Create a table of values showing your monthly bill if you send 0 to 60 texts.

(Count by something other than 1)

Rate of change (***m***) ? $\frac{2 \text{ dollars}}{10 \text{ texts}}$ $\frac{y \text{ change}}{x \text{ change}}$ or $\frac{\text{vertical change}}{\text{horizontal change}}$

Beginning value - step 0 (***b***) ? 20

Write an equation $y = \mathbf{m}x + \mathbf{b}$ to represent the pattern $y = \frac{2}{10}x + 20$

$y = \frac{1}{5}x + 20$

$C = \frac{1}{5}t + 20$