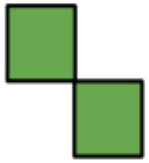
NEED TEXTBOOK!

Created by Macy O'Quinn

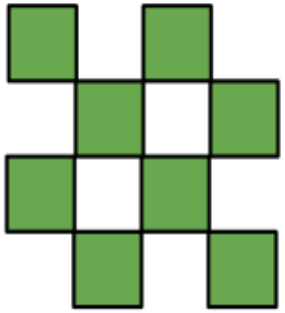
Warmup 9/$\left(\frac{21}{7} + 4^2 + \sqrt[3]{8}\right)$

1) How many shaded boxes would be in step 40?
2) Write an expression to calculate the number of shaded boxes in step "n".

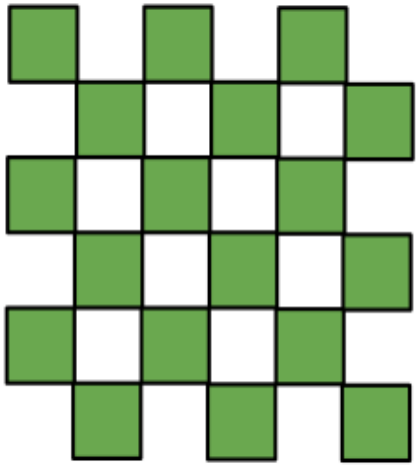
Step 1



Step 2



Step 3



QUIZZES…

- Are not graded yet ☺
- They will be by Monday.

Table of Contents

Constant Rate of Change

Objectives:

-Determine if a situation has a constant rate of change

Are the trees growing at a constant rate???

Years	Height of tree
4	17
5	21
6	25
7	29
8	33

Yes; 4 ft/yr

Years	Height of tree
4	17
6	21
8	25
10	29
12	33

Yes; 2 ft/yr

Years	Height of tree
4	17
5	20
6	25
7	32
8	34

No

- **On July 12th, Gary had $65 saved up. By July 17th, Gary $95 saved up. How many dollars per day did Gary save in this span of time?**

$95 - 65 = \$30$

$17 - 12 = 5$ days

$\frac{\$30}{5} =$ **$6 per day**

The table shows the average temperature (°F) for five months in a certain city. Find the rate of change for each time period. During which time period did the temperature increase at the fastest rate?

Month:	2	4	5	8	9
Temp (°F)	54	62	67	76	78

Is the rate of change constant?

No

Month:	2	4	5	8	9
Temp (°F)	54	62	67	76	78

2 1 3 1

8 5 9 0

Months 2-4: 4 degrees per month
Months 4-5: 5 degrees per month
Months 5-8: 3 degrees per month
Months 8-9: 2 degrees per month

Not constant!

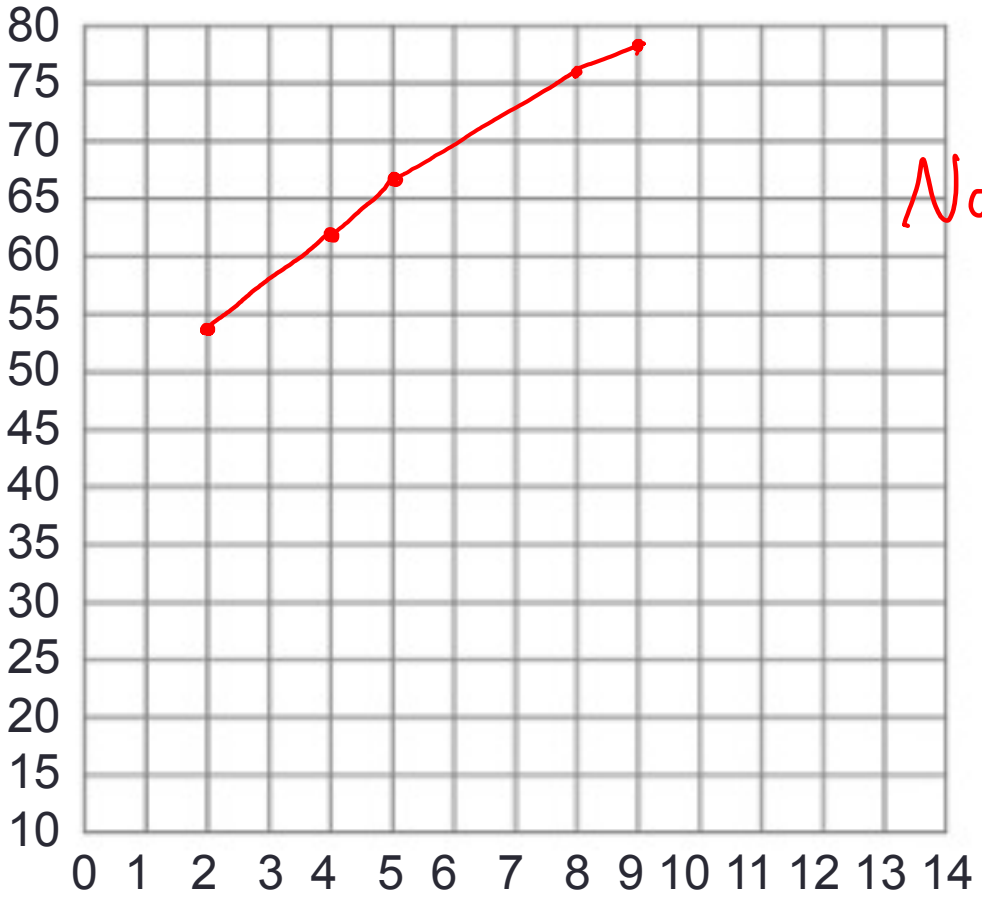
$\frac{8^\circ}{2\text{ mo.}} = 4^\circ/\text{month}$

$\frac{5^\circ}{1\text{ mo.}} = 5^\circ/\text{month}$

$\frac{9^\circ}{3\text{ mo.}} = 3^\circ/\text{month}$

$\frac{2^\circ}{1\text{ mo.}} = 2^\circ/\text{month}$

Month:	2	4	5	8	9
Temp (°F)	54	62	67	76	78



Not linear!

- Anne was reading a book. She wrote down what page she was on at various times:

Time	Page
1:45	0
1:50	15
2:00	45
2:03	54
2:19	102

- **Was she reading at a constant rate?**
- **If so, what is the rate?**
- **If not, when was she reading faster or slower?**

- Anne was reading a book. She wrote down what page she was on at various times:

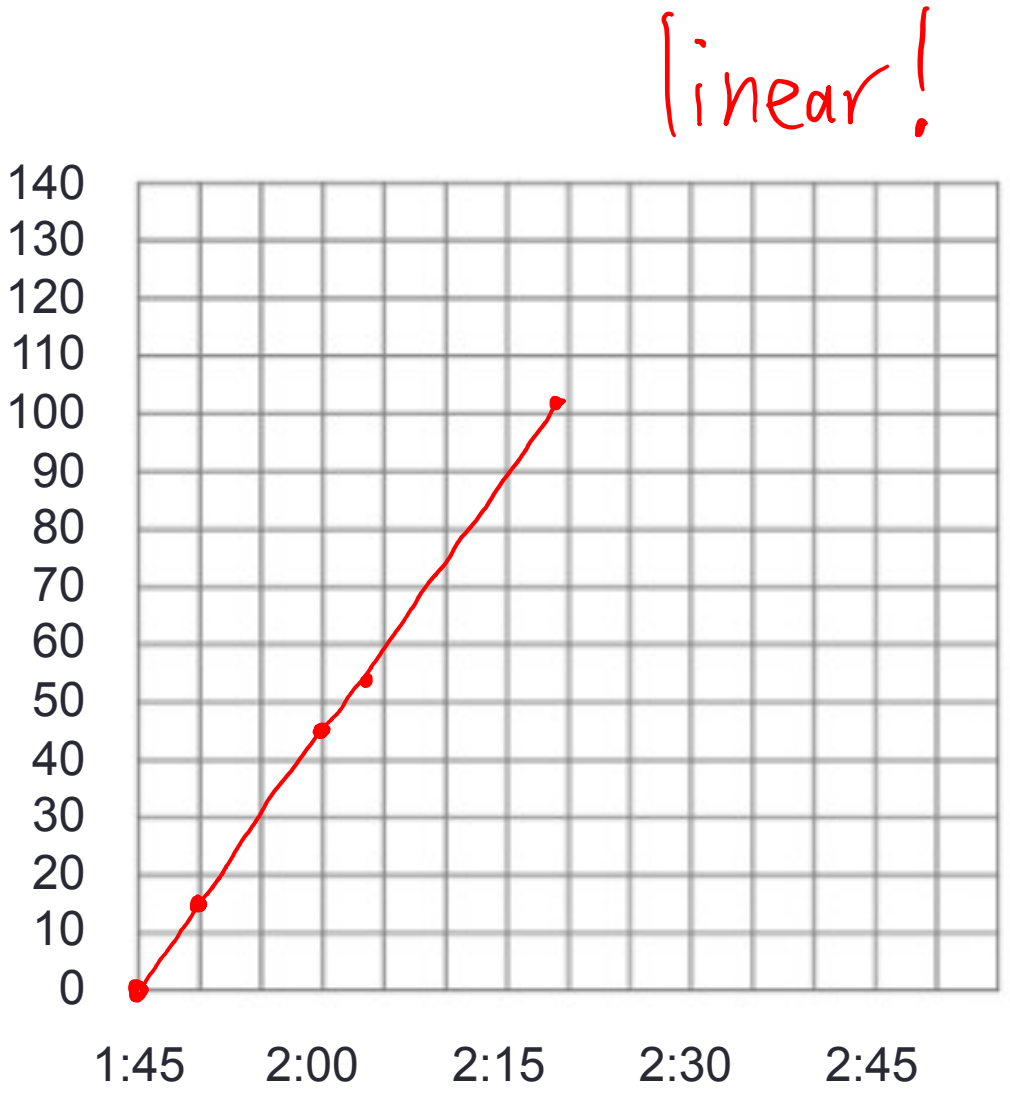
Time	Page
1:45	0
1:50	15
2:00	45
2:03	54
2:19	102

5 < , > 15
10 < , > 30
3 < , > 9
16 < , > 48

$\frac{15}{5} = 3$ $\frac{30}{10} = 3$ $\frac{9}{3} = 3$ $\frac{48}{16} = 3$

- **Was she reading at a constant rate?** **Yes**
- **If so, what is the rate?** **3 pages per minute**
- **If not, when was she reading faster or slower?**

Time	Page
1:45	0
1:50	15
2:00	45
2:03	54
2:19	102

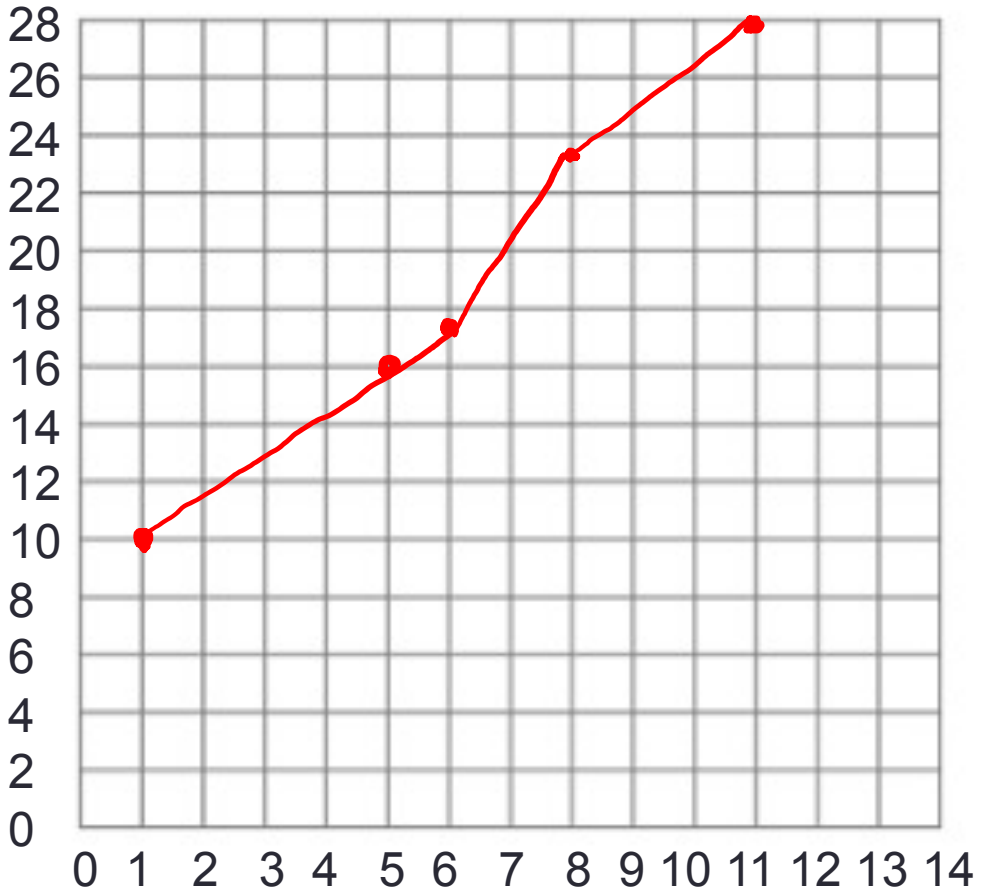


COPY:

- Rate of Change = $\frac{\text{change in y (output)}}{\text{change in x (input)}}$

- Here is an x/y table. Is the rate of change constant?

x	y
1	10
5	16
6	17.5
8	23.5
11	28



No, rate of change is 1.5 for all intervals except for 6-8, where the rate of change is 3

Homework

- p. 175 (1 – 6, 10, 11)
- **+ 30 Minutes of ALEKS**