

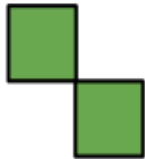
**NEED
TEXTBOOK!**

Created by Macy O'Quinn

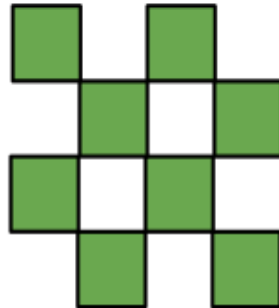
Warmup $9/\left(\frac{21}{7} + 4^2 + \sqrt[3]{8}\right)$

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

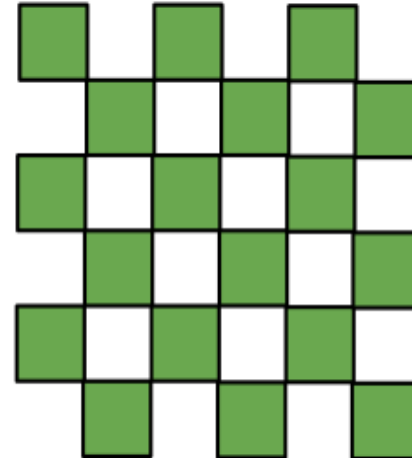
Step 1



Step 2



Step 3



QUIZZES...

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

Table of Contents

p. 1	Converting Fractions and Decimals (1.1)
p. 2	Roots (1.8 & 1.9)
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p. 5	What is a function?
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p. 7	Linear vs. Nonlinear Functions
p. 8	Constant Rate of Change

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
5	20
6	25
7	32
8	34

No

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

Yes; 2 ft/yr

- 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?

$$95 - 65 = \$30$$

$$17 - 12 = 5 \text{ days}$$

$$\frac{\$30}{5} = \boxed{\$6 \text{ per day}}$$

The table shows the average temperature ($^{\circ}\text{F}$) 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 ($^{\circ}\text{F}$)	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

Handwritten red annotations on the table:

- Between Month 2 and 4: a bracket above with '2' and a bracket below with '8'.
- Between Month 4 and 5: a bracket above with '1' and a bracket below with '5'.
- Between Month 5 and 8: a bracket above with '3' and a bracket below with '9'.
- Between Month 8 and 9: a bracket above with '1' and a bracket below with '2'.

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!

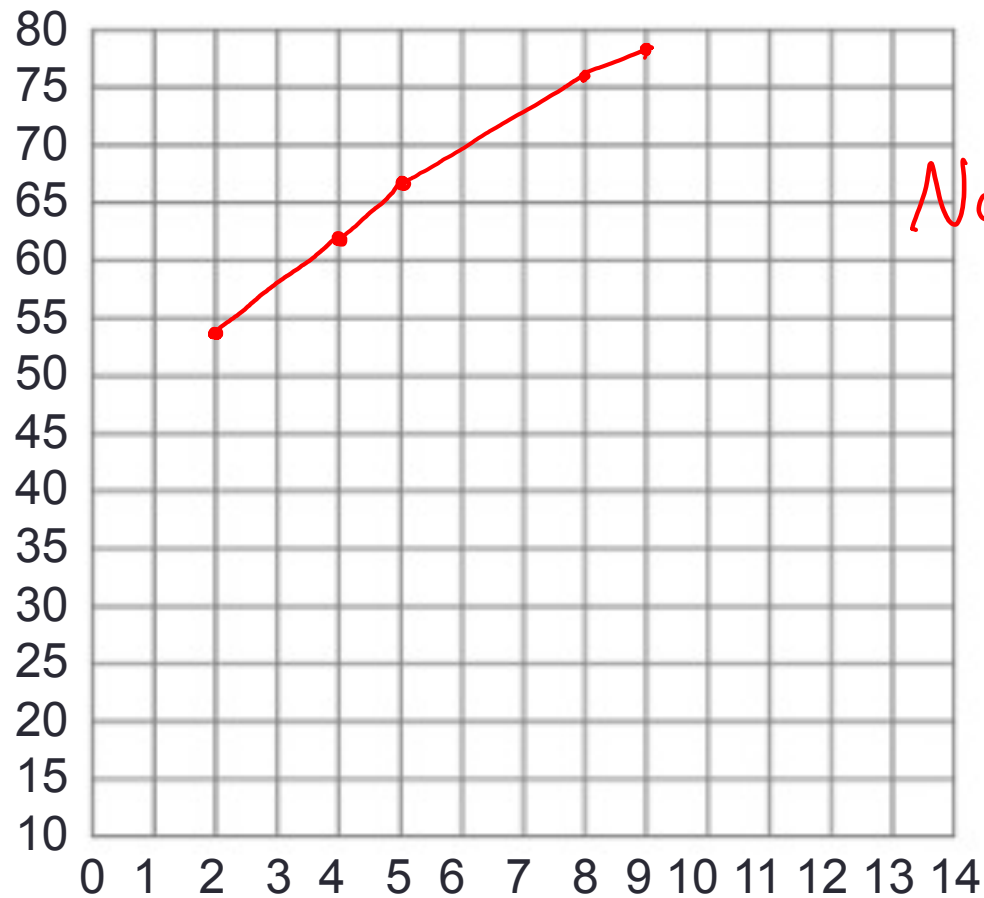
$$\frac{8^{\circ}}{2 \text{ mo.}} = 4^{\circ}/\text{month}$$

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

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

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

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
5<	1:45	0
	1:50	15
10<	2:00	45
3<	2:03	54
16<	2:19	102

$$\frac{15}{5} = 3$$

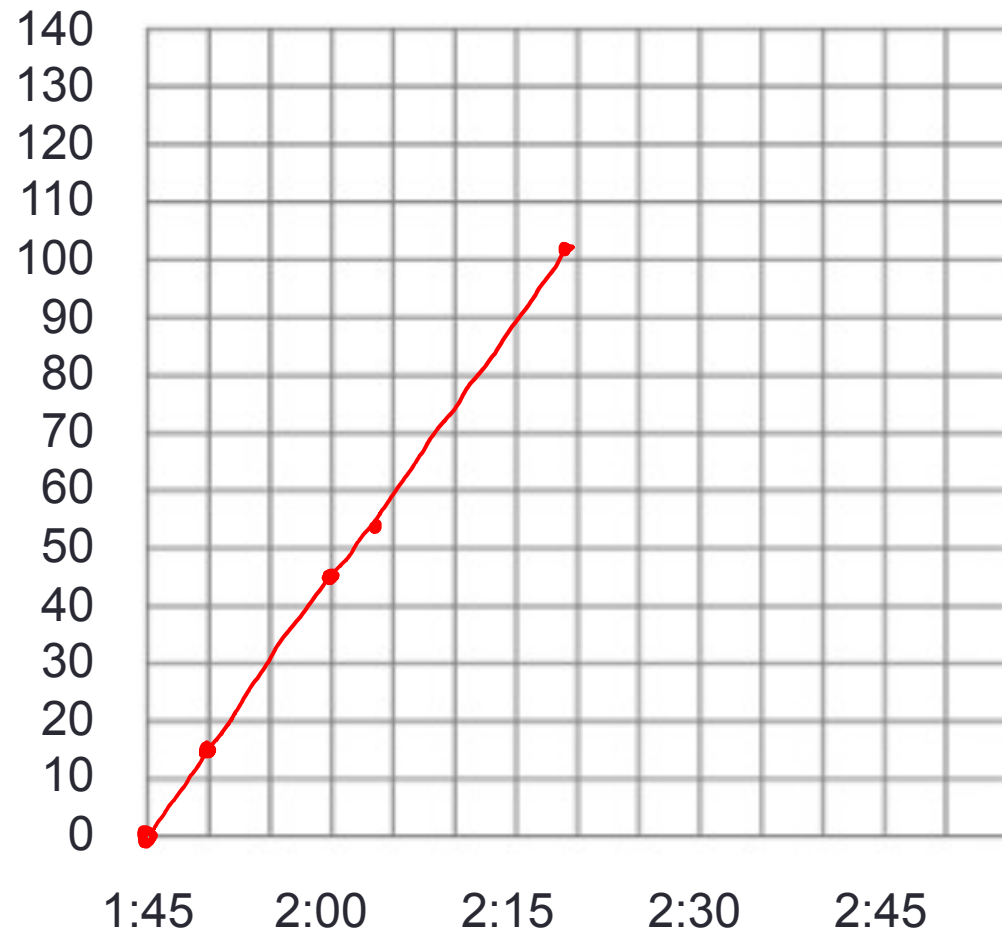
$$\frac{30}{10} = 3$$

$$\frac{9}{3} = 3$$

$$\frac{48}{16} = 3$$

- 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

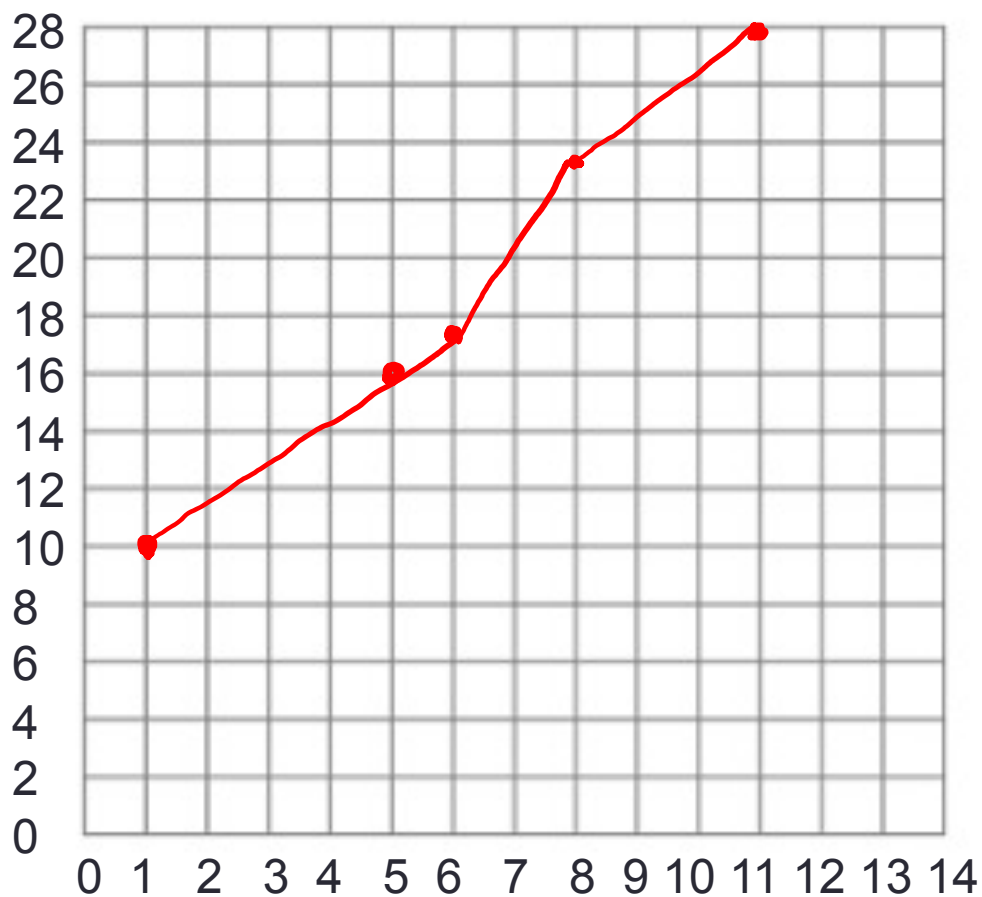


COPY:

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

- 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**