Activator

How are the two functions different?

What is k(4) and j(4)?

$k(x) = 2^x$ Not

$k(4) = 2^{(4)}$ Linear

$k(4) = (2)(2)(2)(2)$

x	k(x)
4	16

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$j(x) = 2x$ Linear

$j(4) = 2(4)$

$j(4) = 8$

x	j(x)
4	8

Today's Objective

Unit 6
Lesson 4

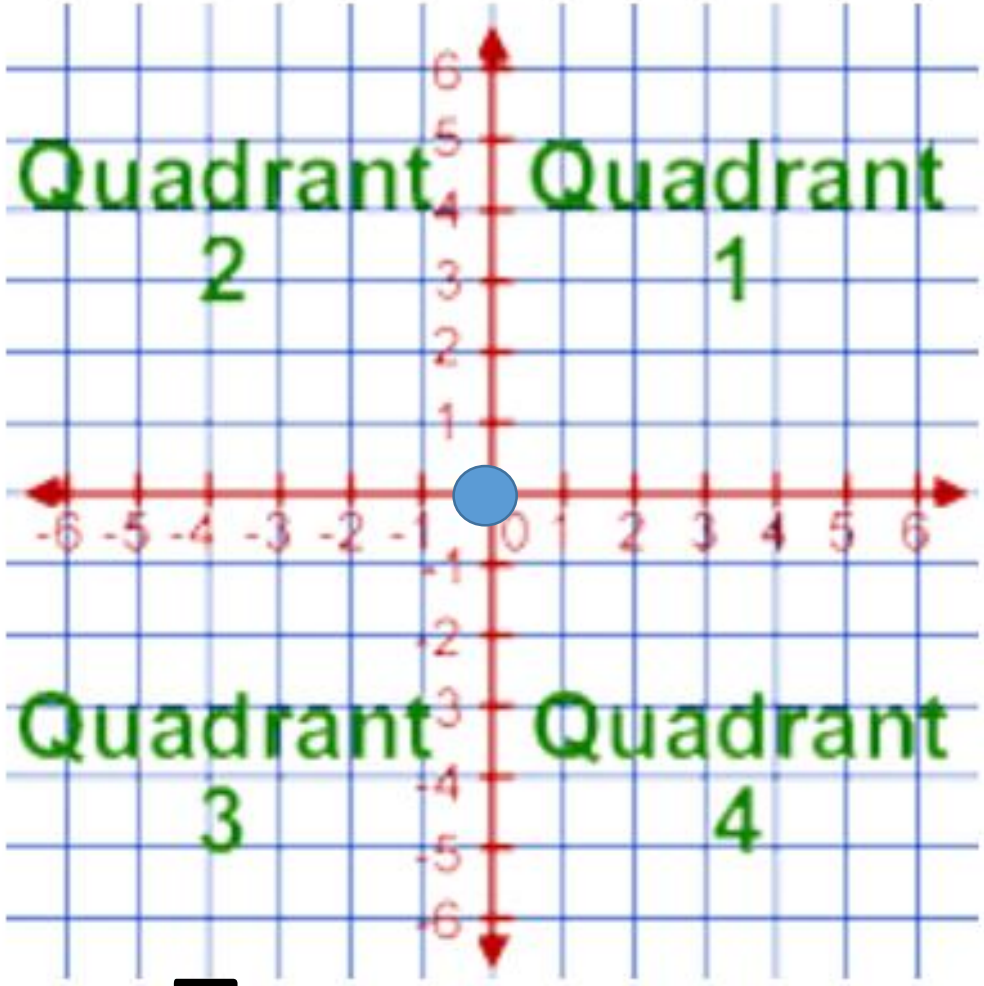
Students will be able to evaluate and graph exponential functions.




Announcements

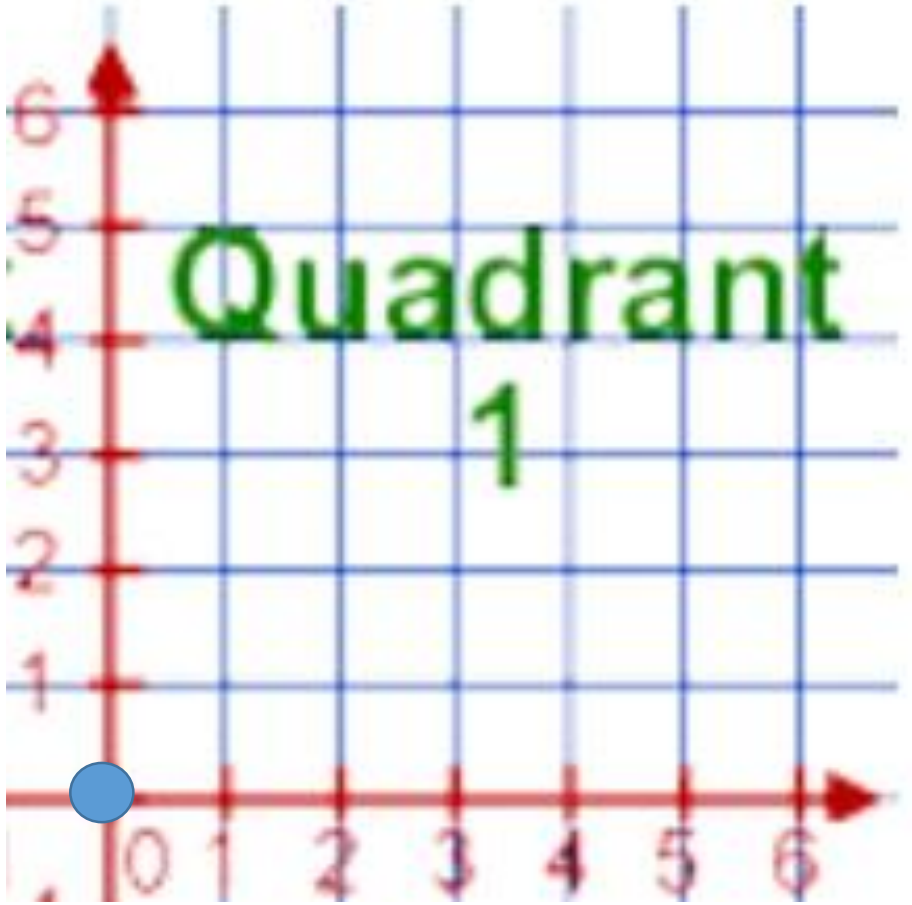
Misconception of the day

Origin (0,0) in the center



Zoom out

Origin (0,0) in the corner



Zoom in

Today's New (1 of 4)

Zoom in Graph

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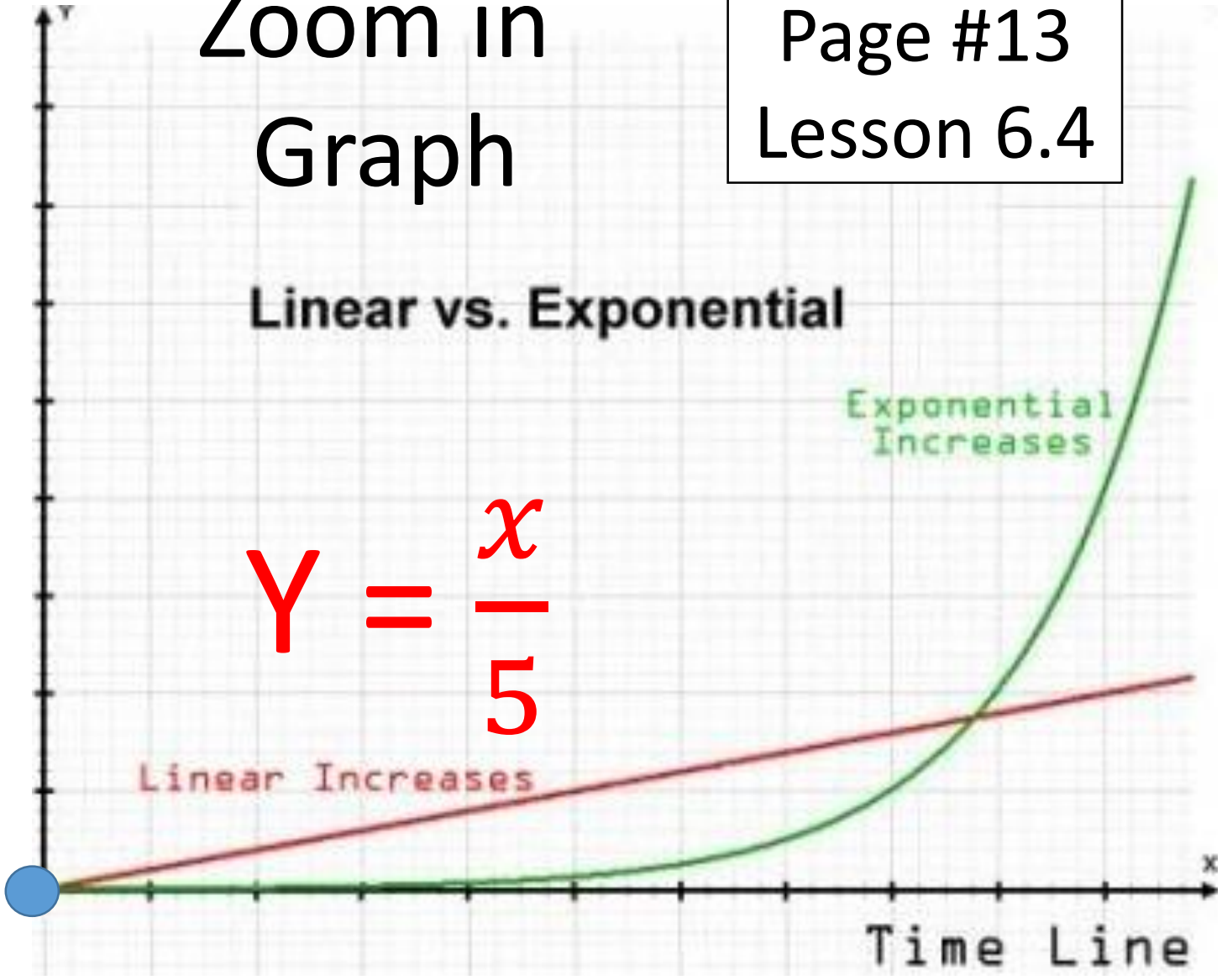

$$Y = \frac{x}{5}$$

The red line is linear and has NO exponent.

The green line is exponential graph. It has an exponent.

$$Y = 2^{x-8}$$

Today's New Vocab (2 of 4)

When x = 3, what is j(3) ?

Evaluate $j(x) = 16 \cdot 4^x$

$j(3) = 16 \cdot 4^{(3)}$

$j(3) = 16 \cdot 4(4)(4)$

$j(3) = 16 \cdot 64$

$j(3) = 1024$

x	j(x)
0	16
1	64
2	256
3	1024

Is the point (3,1024) on the line $j(x) = 16 \cdot 4^x$? Yes

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Today's New Vocab (3 of 4)

Evaluate $k(x) = 16 \cdot \frac{1}{4}^{x}$

When x = 2, what is k(2) ?

$k(2) = 16 \cdot \frac{1}{4}^{(2)}$

$k(2) = 16 \cdot \frac{1}{4} \cdot \frac{1}{4}$

$k(2) = 1$

x	k(x)
0	16
1	4
2	1

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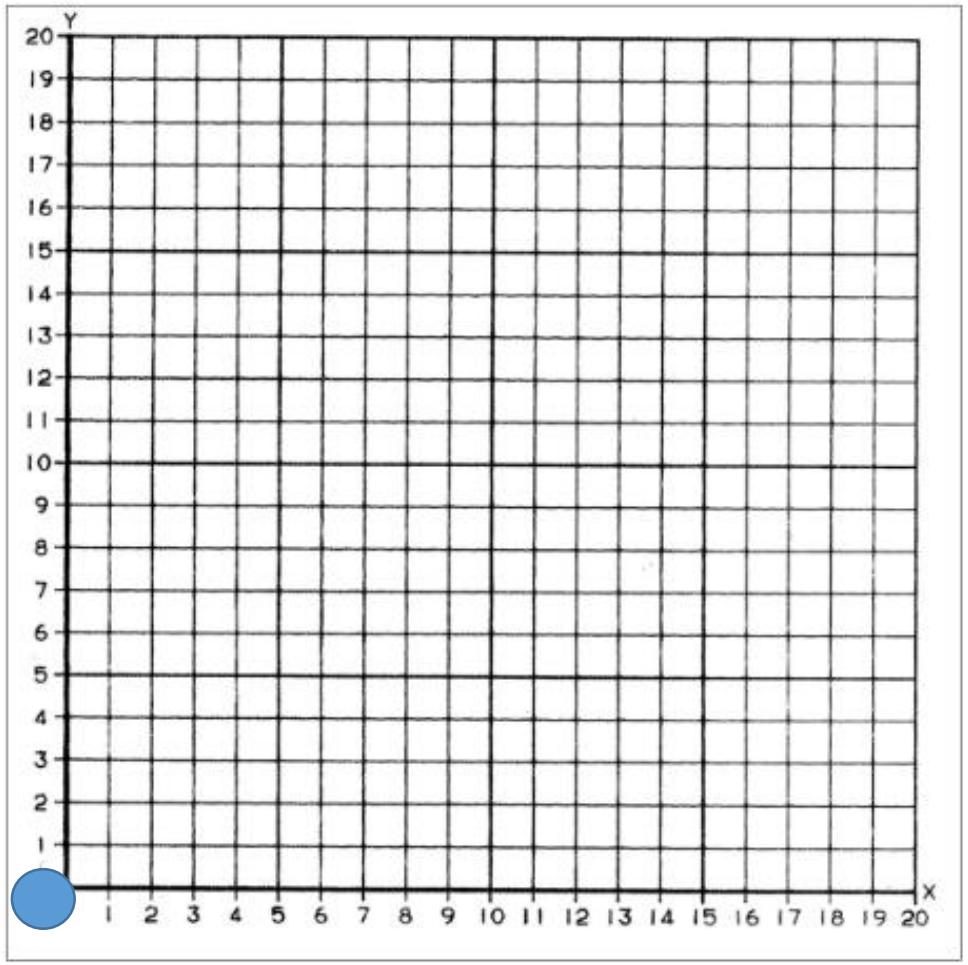
Today's New Vocab (4 of 4)

Graph $k(x) = 16 \cdot \frac{1}{4}^{x}$ over the interval of $0 \leq x \leq 2$

The origin (0,0) is in the corner. Zoom in.



x	k(x)
0	16
1	4
2	1

Growth or Decay?

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Group Work Questions

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Directions: All groups, please do all of the questions. Use your notes to help you. [Ask 2 people before you ask me.]

Stop at 9:26 or 10:56 or 12:50 or 2:15

Do a few questions on the study guide if you finish early.

*One person from each group will present one question.

Work Period

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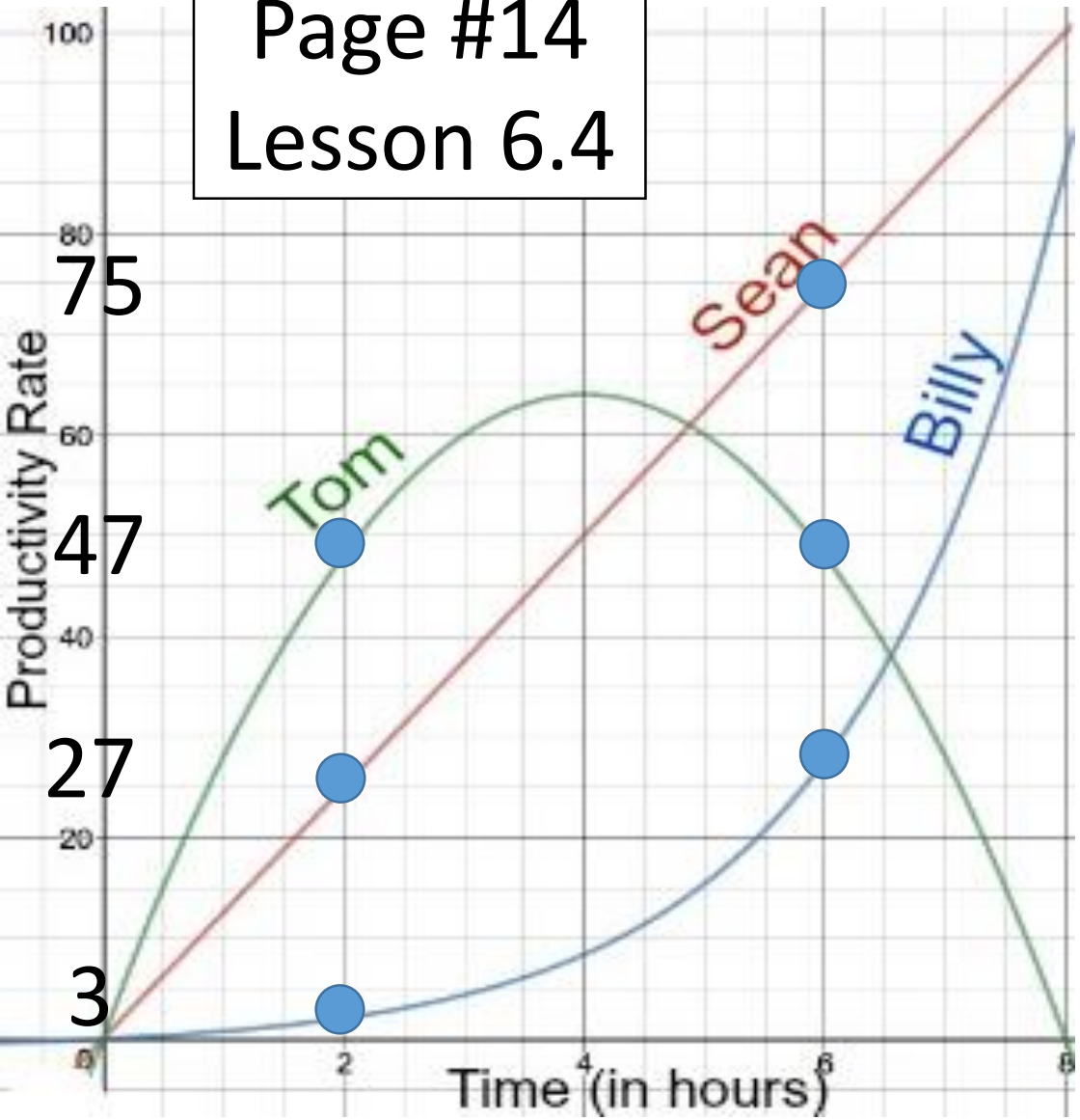

Who is the most productive in hour 2 and 6?

Tom and Sean

What is his productivity rate at those hours?

T(2) = 47 T(6) = 47

S(2) = 27 S(6) = 75

B(2) = 3 B(6) = 27

Exit Ticket

When x = 2, what is j(2) ?

Evaluate $j(x) = 3 \cdot 5^{x}$ the function.

$$j(2) = 3 \cdot 5^{(2)}$$

$$j(2) = 3 \cdot 5(5)$$

$$j(2) = 3 \cdot 25$$

$$j(2) = 75$$

x	j(x)
0	3
1	15
2	75

Growth or decay function? Why?

Growth, the numbers increase

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