

Name: _____

Show work needed to justify your answer.

Date: _____

HW: # 14a: Math IBSL - Standard 14 -The Reciprocal Function

5 points

1. Ben is a dentist. He believes there is a relationship between the average number of cavities developed in each of his patients' mouths per year (y) and the number of minutes they brush their teeth each morning (x).

Ben believes the function $y = \frac{2}{x}$ represents this relationship.

Alita and Chamse are Ben's patients.

- Determine how many cavities Alita is likely to develop in one year if she brushes her teeth for two minutes each morning.
- Chamse develops four cavities in a year. Find the number of minutes she likely spent brushing her teeth each morning.

a) $y = \frac{2}{2} \Rightarrow y = 1$

b) $\frac{4}{1} = \frac{2}{x}$

$4x = 2$

$x = \frac{1}{2}$

30 seconds

Name: _____

Show work needed to justify your answer.

Date: _____

HW: # 14a: Math IBSL - Standard 14 -The Reciprocal Function

5 points

2. Tak's phone can store 64 videos which are each one minute long;
or 32 videos of length two minutes; or 16 videos of length four minutes, etc.
- Find the number of videos of length 16 minutes Tak could store on his phone.
 - Find the function to represent the relationship between the number of videos on Tak's phone (x) and the length of each video (y minutes)
 - Use your GDC to plot a graph of the function you found in part b.
 - Tak wants to store 48 videos on his phone. Plot an appropriate straight line on the same axes to help you find the maximum length of each video.

(x) #	64	32	16	8	4
(y) min	1	2	4	8	16

Time
in min

(a) He can store **4 videos** that are 16 min. each

(b) $y = \frac{64}{x}$

(d) $y = \frac{64}{48}$

$y = 1 \text{ min } 20 \text{ sec}$

