Name: Key Date: Class:

Frameworks Task

slippery slopes

Context: Sam wants to rent an apartment after graduation. The first apartment she looks at is $450 per month plus a security deposit of $500.

1. What is the rate of change? What does it mean? 450 - $ per month
2. What is the y intercept? What does it mean? 500. - security deposit - Amount she pays after zero months.
3. Make a table of Sam's total amount paid (y) for the number of months listed below.

X	Y
0	500
3	1850
6	3200
12	5900

+3, +3, +6 (x); +1350, +1350, +2700 (y)

$\frac{1350}{3} = \frac{450}{1}$ $\frac{2700}{6} = \frac{450}{1}$

I thought the rate of change had to be constant? Does this table show a constant rate of change? Why or why not?

The x intervals are changing but rate of change is still constant.

4. Is the data linear? Explain how you can tell from the table.

yes, the rate of change is constant

5. Describe what the graph of the data would look like.

It would be a line with a positive slope that crosses the yaxis at 500

Context: Each day on her way home from school, Jen uses $1 to buy a bag of chips. The chips cost $.75, and she saves the remaining quarter in her change jar at home. She buys 5 bags of chips per week.

6. At this rate, how long will it take her to save $10.00? Show your work.

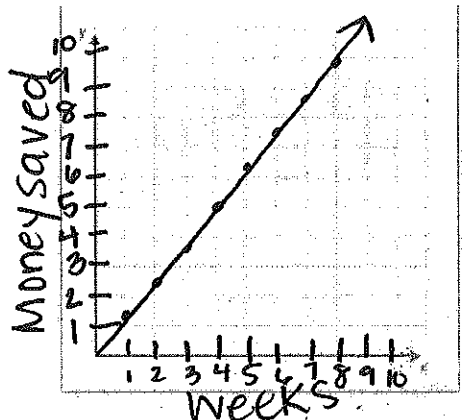
5 bags per week & saves .25 per bag means she saves 1.25 per week (slope) $y = 1.25x$ $\frac{10.00}{1.25} = \frac{1.25x}{1.25}$ $x = 8$ weeks

7. Write the equation to show how much money (y) Jen will save after any number of weeks (x). Explain what each number and variable represents in this context.

$y = 1.25x$

y: total saved; 1.25: amt saved per week; x: number of weeks.

8. Create a graph to represent this relationship.



To make the graph:

1. You could make a table of data and plot the points.
2. You could determine the y intercept and use slope to find a second point. Once you have two points, you can connect them to make your line.

MARK IS ALSO TRYING TO SAVE MONEY. HE ALREADY HAD $3.00 SAVED AND PUTS $1.00 PER WEEK AWAY IN HIS PIGGY BANK. THIS CAN BE REPRESENTED BY THE EQUATION Y = X+3.

9. Will Jen or Mark save $20.00 first? Justify your reasoning.

Jen will have 20 in 16 weeks.

It would take Mark 17 weeks →

Mark: $y = x + 3$, $20 = x + 3$, $17 = x$ (weeks)

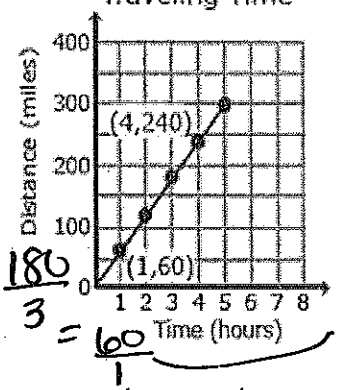
Jen: $y = 1.25x$, $20 = 1.25x$, $\frac{20}{1.25} = \frac{1.25x}{1.25}$, $16 = x$

10. Imagine you have made a graph to represent the money Mark has saved. Explain why Mark's line does not start at the origin and Jen's line does start at the origin.

Mark had already saved $3 at week zero so the y intercept is 3 (0,3). Jen had no extra/starting amount saved, so the y-intercept is zero.

Answer the questions below based on the two given scenarios. Each scenario shows the distance traveled from home.

Scenario 1:



Rate of change $\frac{240-60}{4-1} = \frac{180}{3} = \frac{60}{1}$ 60 miles per hour.

Scenario 2:

$y = 55x$

x is time in hours

y is distance in miles

rate of change = 55 miles per hr.

11. Which scenario represents a greater speed? Explain your choice.

Scenario 1 because the slope/rate of change is 60/1 & Scenario 2 has a rate of 55/1.

12. How far would each person have traveled after 3 hours? Explain. Scenario 1: 60 miles per hour = 180 miles in 3 hrs. Scenario 2: 55 miles per hour = 165 miles in 3 hrs.