Name: $\qquad$ Class Hrs: $\qquad$

## Module 6-B Study Guide

Q 1; 3 points, PP (AD4)
a) An author is paid a flat fee in addition to a certain amount of money for each book sold. The table represents the number of books sold and the amount of money earned.

## PART A: ( $1.5 \mathrm{p}+\mathrm{s}$ )

What is the rate of change for the amount of money earned as a function of the number of books sold.

PART B: ( $1.5 \mathrm{p}+\mathrm{s}$ )

| Books Sold <br> $x$ | Total \$ Earned <br> 4 |
| :---: | :---: |
| 4 | 480 |
| 5 | 500 |
| 8 | 560 |
| 10 | 600 |

What is the flat rate the author receives before any books are sold?
b) Logan has a monthly gaming subscription. The total monthly cost, $y$, in dollars is a function of the number of add-ons purchased, $x$.

## PART A:

What is the rate of change for the monthly cost as a function of the number of add-ons purchased?

## PART B:

| Add-Ons <br> $x$ | Total cost <br> 4 |
| :---: | :---: |
| 2 | 18.50 |
| 5 | 23.75 |
| 10 | 32.50 |
| 15 | 41.25 |

What is the subscription rate Logan must pay before purchasing any add-ons?

Q 2; 2 points, P (AD2)
a) Which function has the greatest rate of change?

Which function has the greatest initial value?

Function A


Function B

| $x$ | 4 |
| :---: | :---: |
| 5 | 13 |
| 7 | 15 |
| 11 | 19 |
| 16 | 24 |

Function C
$y=0.75 x+5$
b) Which function has the greatest rate of change?

Which function has the greatest initial value?

Function E

| $x$ | $y$ |
| :---: | :---: |
| 2 | 5 |
| 3 | 3 |
| 4 | 1 |
| 5 | -1 |

Function $F$
$y=2 x-4$

| Number of <br> weeks | Weight in <br> pounds |
| :---: | :---: |
| 1 | 199 |
| 3 | 191 |
| 5 | 183 |

$y=$ $\qquad$

What does the slope represent?
What does the $y$-intercept represent?

PART B: How many weeks does it take Kevin reach his goal weight of 175 lbs ? $\qquad$ weeks
b) Amanda began doing her homework after she got home from school. Her progress is shown in the table.

## PART A:

Write an equation for a function that represents Amanda's number of problems completed, $\boldsymbol{y}$, after she has been working for $\boldsymbol{x}$ minutes.

| Number of <br> minutes spent <br> working | Number of <br> problems <br> remaining |
| :---: | :---: |
| 4 | 24 |
| 8 | 18 |
| 10 | 15 |

$\qquad$

What does the slope represent?
What does the y-intercept represent?

PART B: How many minutes did it take Amanda to finish her homework? $\qquad$ minutes
c) Jeremy is paying his dad back for money he borrowed. The amount he owes is shown in the table.

## PART A:

Write an equation for a function that represents the amount of money he owes, $\boldsymbol{y}$, after he has been paying him back for $\boldsymbol{x}$ months.

| Number of <br> Months, $x$ | Amount of <br> $\$$ Owed |
| :---: | :---: |
| 2 | 600 |
| 4 | 450 |
| 5 | 375 |
| 7 | 225 |

$\qquad$

What does the slope represent?
What does the y-intercept represent?

PART B: How many months did it take for Jeremy to repay his dad? $\qquad$ months

Q 4; 2 points, p (AD7)
Amy's puppy, Buddy, is waiting by the door for her to come home from school.

- She opens the door and Buddy takes off running for 24 blocks at a constant rate of 4 blocks per 1 minute.
- Buddy stops in the park to bark at a cat in a tree for 10 minutes, where Amy catches up with him.
- Amy puts Buddy's leash on him and they walk home together ( 24 blocks) at a constant rate of 2 blocks per 1 minute.

Create a graph that represents Amy's distance from home, $\boldsymbol{y}$, in blocks, $\boldsymbol{x}$ minutes after she leaves home to catch Buddy.


Consider the functions represented by the given graphs. Indicate whether the description applies to Function A or Function B.



|  | Description | Function <br> A | Function <br> B |
| :---: | :--- | :--- | :--- |
| 1 | The function increases when $x$ is between 0 and 2. |  |  |
| 2 | The function neither increases nor decreases when $x$ <br> is between 2 and 4. |  |  |
| 3 | The function decreases when $x$ is between 2 and 4 |  |  |
| 4 | The function increases when $x$ is between 4 and 7. |  |  |

Answer Key
Question 1: 3 points, PP (AD4)
a) PART A: Rate of change: $\$ 20$

PART B: Flat rate: \$400
b) PART A: Rate of change: $\$ 1.75$

PART B: Flat rate: $\$ 15$

Question 2: 2 points, P (AD2)
a) Greatest Rate of Change: Function B

Greatest Initial Value: Function B
b) Greatest Rate of Change: Function F

Greatest Initial Value: Function E

Question 3: 1 point, HP (AD4)
a) PART A: $y=-4 x+203$

Slope Represents: The amount of weight he loses per week
$y$-intercept Represents: Kevin's starting weight.
PART B: It will take 7 weeks to reach his goal weight of 175 lbs .
b) PART A: $y=-\frac{3}{2} x+30$ or $y=-1.5 x+30$

Slope Represents: The number of homework problems she does per minute.
$y$-intercept Represents: The total number of homework problem she has to do.
PART B: It will take Amanda 20 minutes to finish all the problems.
c) PART A: $y=-75 x+750$

Slope Represents: The amount Jeremy pays back per month.
$y$-intercept Represents: The total amount of money he borrowed.
PART B: It will take Jeremy 10 months to pay back the total amount he borrowed.

Question 4: 2 points, $P$ (AD7)


Question 5: 1 point, HP (AD6)

|  | Description | Function <br> A | Function <br> B |
| :---: | :--- | :--- | :---: |
| 1 | The function increases when $x$ is between 0 and 2. |  |  |
| 2 | The function neither increases nor decreases when $\boldsymbol{x}$ <br> is between 2 and 4. |  |  |
| 3 | The function decreases when $\boldsymbol{x}$ is between 2 and 4 | The |  |
| 4 | The function increases when $\boldsymbol{x}$ is between 4 and 7. |  |  |

