

## STUDENT MATERIALS

### PART 1 – LIVING LINEAR

Answer each of the questions below. Be sure to show your calculations in the space provided.

1. In a cafeteria a student purchases one of the lunch options for \$3.35 each day of the week. An equation to model this situation is  $y = 3.35x$ .

$$3.35(10)$$

- I. If ten lunches are purchased, what is the total cost?

$$\underline{\$ 33.5}$$

- II. At the end of the month the total cost was \$67. How many school lunches were purchased?

$$\underline{20 \text{ lunches}}$$

$$\begin{array}{r} 67 \\ \underline{3.35} \end{array}$$

- III. In the equation  $y = 3.35x$ , the  $y$ -intercept represents

- a. The total cost, in dollars, of buying a school lunch.
- b. The number of days school lunch was purchased.
- c. The total cost, in dollars, when zero lunches are purchased.
- ☒ d. The cost, in dollars, for one day of purchasing lunch.

- IV. In the equation  $y = 3.35x$ , the slope represents

- a. The cost of buying a school lunch.
- b. The number of lunches purchased.
- ☒ c. The cost of purchasing additional food options.
- d. The total cost of purchasing lunches.

2. Sam earns \$50 per week by babysitting after school. If Sam babysits on the weekend an additional \$12 per hour could be earned. Sam is saving money to purchase a new outfit for the formal dance. To calculate money earned in one week the following equation can be used:  $y = 12x + 50$ .

- I. The variable  $x$  represents:

The number of hours

- II. The variable  $y$  represents:

the y-intercept

- III. What does the slope represent in the context of the situation?

the amount earned per ~~week~~ hour on the weekend

- IV. What does the y-intercept represent in the context of the situation?

the amount earned per week

3. In a mathematics quiz bowl tournament, students compete to finish a math test in record time. Create equations to model the total time, in minutes,  $y$ , it will take each student to complete  $x$  questions, given the rates below.

$$y = mx + b?$$

Student A averaged 30 seconds per question.

Student B averaged .45 minutes per question.

Student C averaged  $\frac{2}{3}$  minutes per question.

- I. Show your work and equation for each student below.

Student A:

$$y = 30x \quad 30(40) \quad 1200$$

Student B:

$$y = .45x \quad .45(40) \quad 18$$

Student C:

$$y = \frac{2}{3}x \quad \frac{2}{3}(40) = \frac{80}{3} \text{ or } 26.\overline{7}$$

- II. If each student completes 40 questions, which student will win? Student B
- III. The student who won the mathematics quiz bowl finished in 18 minutes.
- IV. In the equation for Student A the slope represents:

the seconds per question

- V. In the equation for Student B, the y-intercept represents:

minutes per question