

NAME: _____

UNIT 3 • LINEAR AND EXPONENTIAL FUNCTIONS

Lesson 1: Graphs As Solution Sets and Function Notation

Problem-Based Task 3.1.1: Saving for College

Jake graduated from high school and is working at the family furniture store to save for college. He earns \$12.50 per hour plus a commission of 15% of all sales once he's made \$500 in sales. Jake's commission (not including hourly pay) is represented by the equation $c = (0.15)(x - 500)$, where c is Jake's commission in dollars and x is Jake's total sales. Create an equation describing Jake's hourly wages. Graph both equations and describe Jake's earning potential.

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Coaching

- a. Use an equation to create a model of Jake's hourly earnings.
- b. Graph this equation.
- c. Graph the given equation for Jake's commission, $c = (0.15)(x - 500)$.
- d. Using the graphs, estimate what Jake would earn if he worked 20 hours and sold \$3,000 worth of furniture.
- e. Using the graphs, estimate what Jake would earn if he worked 40 hours and sold \$6,000 worth of furniture.
- f. Which method of payment results in a guaranteed wage: getting paid hourly or by commission?
- g. About how much in furniture sales does Jake need to make in a 40-hour week for his commission to match his hourly wage?
- h. Describe Jake's earning potential based on the graphs.