

PROBLEM-OF-THE-DAY: ALGEBRA 1**WEEK:** February 4 to February 8**Day:** Wednesday

RISD Objective: Given a graph or a table of values, students will be able to write a linear equation that describes the information.

PROBLEM #98

The following table shows the number of hours that Shamika babysat and the amount of money she earned.

Number of Hours	Amount Earned
2.5	13.75
4	22.00
5.5	30.25
6	33.00

1. Write a linear equation that represents this data.
2. How many hours will Shamika work if she earns \$41.25?

MODEL SOLUTION #98

1. The slope in this situation represents Shamika's hourly rate.

I will use the first two ordered pairs to find the slope.

(2.5, 13.75)(4, 22)

$$\text{Slope: } M = \frac{y_2 - y_1}{x_2 - x_1}$$

$$M = \frac{22 - 13.75}{4 - 2.5}$$

$$M = \frac{8.25}{1.5}$$

$$M = 5.5$$

So Shamika's hourly rate is \$5.50.

Now use the point slope formula to write the equation.

$$y - y_1 = m(x - x_1)$$

I will use $m = 5.5$ and the second point (4, 22). I choose this point because it was a simpler point.

$$y - 22 = 5.5(x - 4)$$

$$y - 22 = 5.5x - 22$$

$$y = 5.50x$$

2. Using the equation: $y = 5.50x$

I know that y represents the money earned and x represents the number of hours worked. So I substitute \$41.25 for y and solve for x :

$$41.25 = 5.50x$$

$$7.5 = x \quad \text{Divide by 5.50}$$

To earn \$41.25 Shanika babysat for 7.5 hours.

