

### Mid Module 4 Study Guide

1. In Idaho the state sales tax rate is 6.00%.
- a. A shirt costs \$24.99 and a pair of boots costs \$89.99. Rounded to the nearest cent, how much more is the tax on the boots than the tax on the shirt?

Tax on shirt:  $\$24.99(0.06) = \$1.50$

Tax on boots:  $\$89.99(0.06) = \$5.40$

Tax on boots – Tax on shirt =  $\boxed{\$3.90}$

"How much more" means you need to find the difference (subtract).

- b. Using  $n$  to represent the cost of an item in dollars before tax and  $t$  to represent the amount of sales tax in dollars for that item, write an equation to show the relationship between  $n$  and  $t$ . (Hint: Use sales tax rate of 6.00%)

$t = 0.06n$

- c. Using your equation from part b., create a table that includes five possible pairs of solutions to the equation. Label each column appropriately.

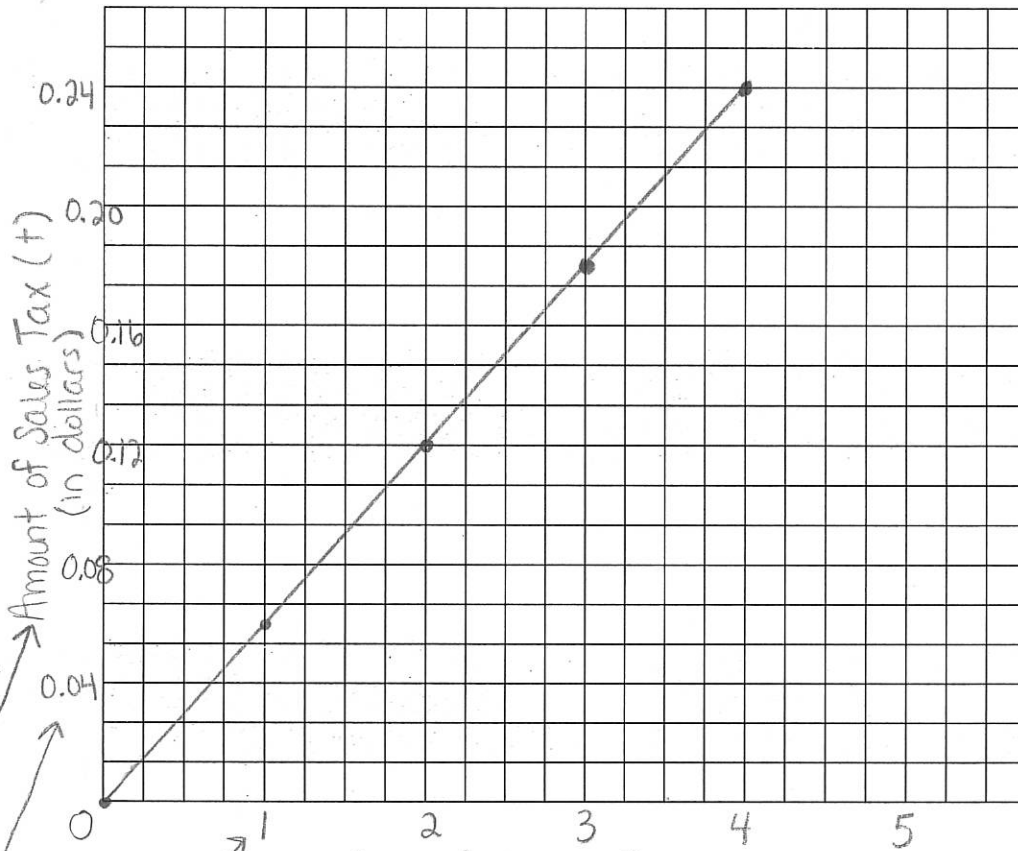
Cost of item (n)	Amount of sales tax (t)
0	0
1.00	0.06
2.00	0.12
3.00	0.18
4.00	0.24

Table values may vary

- d. Graph the relationship from parts (b) and (c) in the coordinate plane below. Include a title and appropriate scales and labels for both axes.

Sales Tax of an Item

Don't forget the title!



\* Remember, the independent variable is graphed on the horizontal axis.

\* Don't forget to label your axes, both with numbers and titles

Cost of item before tax (n)  
(in dollars)

- e. Is the relationship proportional? Why or why not? If so, what is the constant of proportionality? Explain.

Yes, the relationship is proportional because the graph is a straight line through the origin. Also, the table shows a constant value of proportionality;  $t/n$  is always 0.06.

$$\frac{0.06}{1} = 0.06$$

$$\frac{0.24}{4} = 0.06$$

$$\frac{0.12}{2} = 0.06$$

$$\frac{0.18}{3} = 0.06$$

Name: \_\_\_\_\_ Date: \_\_\_\_\_

2. Jonathan is making his famous burgers to sell at the County Fair. To help sell more burgers at the fair, Jonathan sets the price for one burger at 30% less than what it would cost at his restaurant. At the fair, he posts a sign that reads, "Jonathan's World Famous Burgers – Only \$4.20/burger!" Using this information, what is the price of one burger at the restaurant?

Part = Percent \* Whole

$$4.20 = 0.7 * \text{Whole} \quad \text{Note: } 0.7 \text{ is the percent that you pay}$$

$$6.00 = \text{Whole}$$

**The price of the burger at the restaurant is \$6.00.**

OR

Sale price = original – discount

Let  $x$  = original price

$$4.20 = x - 0.3x$$

The discount is 30% of the original price

$$4.20 = 0.7x$$

$$6.00 = x$$

**The price of the burger at the restaurant is \$6.00.**