**A.** Joshua currently works on commission. He has a base salary of $250 plus he earns 5% commission on his sales. Let’s explore his possible total salary based on selling items that total from a range of $0 to $8,000 in increments of $1,000. Create a table of this situation, graph this situation and create an equation. Then answer the questions that follow.



 $ Sales (s) $ Salary (w)

|  |  |
| --- | --- |
| 0 | 250 |
| 1,000 | 300 |
| 2,000 | 350 |
| 3,000 | 400 |
| 4,000 | 450 |
| 5,000 | 500 |
| 6,000 | 550 |
| 7,000 | 600 |
| 8,000 | 650 |

Use graph paper to create a graph of the situation.

What is the equation for the situation? w = 0.05 s + $250

What is the slope of this situation? What does it represent? Slope = 0.05 or $\frac{1}{20}$ or $\frac{5}{100}$

That is his percent of commission. (For every 100 sales, Joshua earns $5 more or for every $20 sales he earns $1.)

What is the y-intercept of this situation? The y-intercept is $250. What does it represent? The amount Joshua would earn if he made no sales and got no commission, but just earned his base salary of $250.

**B.** Suppose the boss says to Joshua, “Have I got a deal for you! We would like to raise your commission rate to 7% but lower your base salary to $200.” What should Joshua do? Is this a good deal?

 Salary at Salary at

 Sales $250 + 5% $200 + 7%

2,500 375 375

The break-even point comes at $2,500 in sales, so if his sales are a tad more than $2,500 it will not matter which rate he is paid. If Joshua normally sells more than $2,500 worth of goods, the new deal will be better. If he normally sells less than $2,500, the old deal is better.

|  |  |  |
| --- | --- | --- |
| 0 | 250 | 200 |
| 1,000 | 300 | 270 |
| 2,000 | 350 | 340 |
| 2,5003,000 | 375400 | 375410 |
| 4,000 | 450 | 480 |
| 5,000 | 500 | 550 |
| 6,000 | 550 | 620 |
| 7,000 | 600 | 690 |
| 8,000 | 650 | 760 |

Make a table, graph the situation on the same graph as the first situation, and create an equation to help you and Joshua understand this new offer. W = .07s + 200

When will this be a “good deal” for Joshua?

 200 + .07 s > 250 +.05 s

 Sales > 2,500

When will it not matter which offer Joshua chooses? When sales are $2,500.

**C.** What if management decides to eliminate the base salary and raise the commission rate to 10%. What will the graph look like and when will it be a good deal for Joshua?

The new graph will cross the origin and have a slope of $\frac{1}{10}$. It will exceed graph 1 ($250 + 5%) at about sales of $6,667 and will exceed graph 2 at sales of $5,000.