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GB730

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**Excel Modeling Learning-by-Trying Participation Exercise**

Please work on the following problems in one Excel workbook (one per sheet).

**Problem 1: Net Earnings Calculation**

A small industrial-products firm has 5 main products in its product line. Sales prices, units sold, and costs for each product are listed below. The sales force is paid a commission of 3% of sales revenue. The 3% sales commission applies to each of the 5 products. Please calculate the total net earnings (before interest and tax) over all the 5 products.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Product | A | B | C | D | E |
|  |  |  |  |  |  |
| Sales Price/unit | $125 | $345 | $99 | $380 | $235 |
| Units Sold/year | 8400 | 4200 | 10950 | 4000 | 3850 |
| COGS (Cost of Goods Sold)/unit | $62 | $188 | $52 | $225 | $109 |
|  |  |  |  |  |  |
| Sales commission | 3% |  |  |  |  |

**Problem 2: XYZ Breakeven**

The following data relate to the one product of the XYZ company:

|  |  |
| --- | --- |
| Planned sales in units | 20000 |
| Selling price | $15 |
| Variable cost per unit | $9 |
| Total fixed costs | $60000 |

1. If XYZ achieves its planned 20000 unit sales, how much profit will it make?
2. Which of the following events would reduce planned profits the most?
   1. Decrease selling price by 10%
   2. Increase variable costs by 10% per unit
   3. Increase in total fixed costs by 10%
   4. Decreasing unit sales by 10%
3. If the selling price declined by 10%, how many **more** units would have to be sold to achieve the same planned profit?

**Problem 3: Salary Comparison**

Company A offers you an initial salary of $150,000 with annual raises of 10% for the foreseeable future. Company B offers you $180,000 with annual raises of 8% for the foreseeable future.

1. How many years will it take for the A salary to equal or surpass the B salary?
2. How many years will it take for the total dollars received from A to equal or surpass the total dollars received from B?

**Problem 4: Quantity Discount Calculation**

“We offer our preferred customers quantity discounts” says your boss, “but unfortunately our sales people often mess up explaining and calculating those discounts to our customers.”

“For example, here are the pricing terms for product 51c:”

* Price per unit for the first 1000 units is $1.00
* Price per unit for the next 500 units is $.90
* Price per unit for units above 1,500 is $.80

Make your boss a spreadsheet that can calculate the total cost to a customer as a function of the customer’s quantity ordered. What’s the price of a 1,600 unit order?

**Problem 5: Simple Subscriber Projection Model**

Your boss wants you to forecast the total number of subscribers in your service organization 5 years from now under certain assumptions. The number of subscribers to your service in the previous two years, which operates in several large cities, is given in the table below.

**Last Year This Year**

New York 8009 7998

Los Angeles 3695 3795

Chicago 2896 2761

Houston 1974 2409

San Francisco 777 701

Denver 554 595

Your boss has requested that you base your projections on the assumption that the year-over-year percent growth from last year to this year will continue to hold in the future. (For example, Denver’s subscribers increased by approximately 7.4% from last year to this year, so you can assume the projection for next year would be for the number of subscribers to grow another 7.4% from this year.)