Answer on Question #44590 – Math - Other

Problem.

Estimates of the financial information for a new product show the following information:

Units Sold Probability Fixed cost Rs. 8,000
600 .35 Variable cost Rs. 6 / unit
800 .45 Revenue Rs. 22 / unit
1000 .20

Use the random numbers .51, .97, .58, .22, and .16 to simulate five trials. What is the net profit for each trial?

Remark.

The statement isn't correctly formatted. I suppose that the correct statement is
"Estimates of the financial information for a new product show the following information:

Units Sold	Probability	Fixed cost	$8,000
600	.35	Variable cost	$6/unit
800	.45	Revenue	$22/unit
1000	.20		

Use the random numbers .51, .97, .58, .22, and .16 to simulate five trials. What is the net profit for each trial?"

Solution.

$$\text{Units sold} = \begin{cases} 600, & \text{if Random Number} \le 0.35; \\ 800, & \text{if } 0.35 < \text{ Random Number} \le 0.35 + 0.45 = 0.8; \\ 1000, & \text{if } 0.8 < \text{ Random Number} \le 1. \end{cases}$$

$$\text{Revenue} = \text{Units sold} \times \text{Revenue per unit.}$$

$$\text{Variable cost} = \text{Units sold} \times \text{Variable cost per unit.}$$

$$\text{Net Profit} = \text{Revenue} - \text{Variable cost} - \text{Fixed cost.}$$

Trial	**1**	**2**	**3**	**4**	**5**
Random Number	0.51	0.97	0.58	0.22	0.16
Units sold	800	1000	800	600	600
Revenue	17600	22000	17600	13200	13200
Variable cost	4800	6000	4800	3600	3600
Fixed cost	8000	8000	8000	8000	8000
Net Profit	4800	10000	4800	1600	1600