Calculating Expected Value

A company can sell the rights to a product now for royalties later. The table below indicates the opinions (probabilities) of what the total royalty amounts could be.

Royalty in $Million	P(Royalty $)
0	.3
2	.5
3	.2

To calculate the Expected Value of the royalty amount, multiply the possibilities (left column above) by the probabilities (right column above), and then add the results.

Formula: $E(x) = \Sigma x * P(x)$

- E(x) reads, "the Expected Value of the random variable x."
- The entire equation reads, "the Expected Value of the random variable x equals the sum of each random variable x multiplied by the probability of x."
- The "Expected Value" for this example is "Expected Profit," as shown below.

0	x	.3	=	0
2	x	.5	=	1.0
3	x	.2	=	.06
		E(P)	=	1.6

The company's opinion is that the average return (Expected Value/Expected Profit) from selling the rights is $1.6 million.