A company estimates that 0.2% of their products will fail after the original warranty period but within 2 years the purchase with a replacement cost of $350

IF they offer a 2 year extended warranty for $53 what is the company's expected value of each warranty sold?

Solution

The outcomes are $53 and $-(\$350 - \$53) = -\$297$.

The probabilities of outcomes are $1 - 0.002 = 0.998$ and 0.002 respectively.

The company's expected value of each warranty sold is

$$\$53 \cdot 0.998 + (-\$297) \cdot 0.002 = \$52.3.$$

Answer: $\$\mathbf{52.3}$.