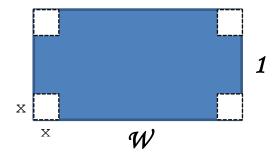
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Calculus - Mr. Rivera

Quiz - Constructing an Open Box

The 1-by-W cardboard shown below will be used to construct an open box by cutting off its x-by-x corners and folding its remaining creased flanges.

- 1. Find the governing equation to calculate the volume of the box in terms of x and W.
- 2. Find the derivative of the governing equation in terms of x and W.
- 3. Find the value(s) of x in terms of \mathcal{W} for which the volume of the box is maximum.
- 4. Graph the resulting functional *values* of x in terms \mathcal{W} , i.e., $f(\mathcal{W})$ for $0 \le \mathcal{W} \le 1$.



Note: Please review your notes on related problems solved in class.