

Solving Maximum and Minimum Problems

Make sketch of problem and identify given quantities

Write equation (primary) that is to be maximized or minimized.

Write other equations (secondary) to express primary equation in one variable.

Determine the maximum (or minimum) value desired.

A business wants to design an **open box** having a square base and a **surface area of 108 in²**.
What dimensions will maximize the **volume** of the box?

A cylindrical can is made to hold $1,000 \text{ cm}^3$ of liquid. Find the dimensions of the can that will minimize the cost of metal to manufacture the can.

A farmer has 300 yards of fencing to create three rectangular pens as shown in the following figure. If all three pens have a width of x yards, what value of y will maximize the area enclosed?

Find two positive numbers whose product is 124 and sum is minimized.

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