

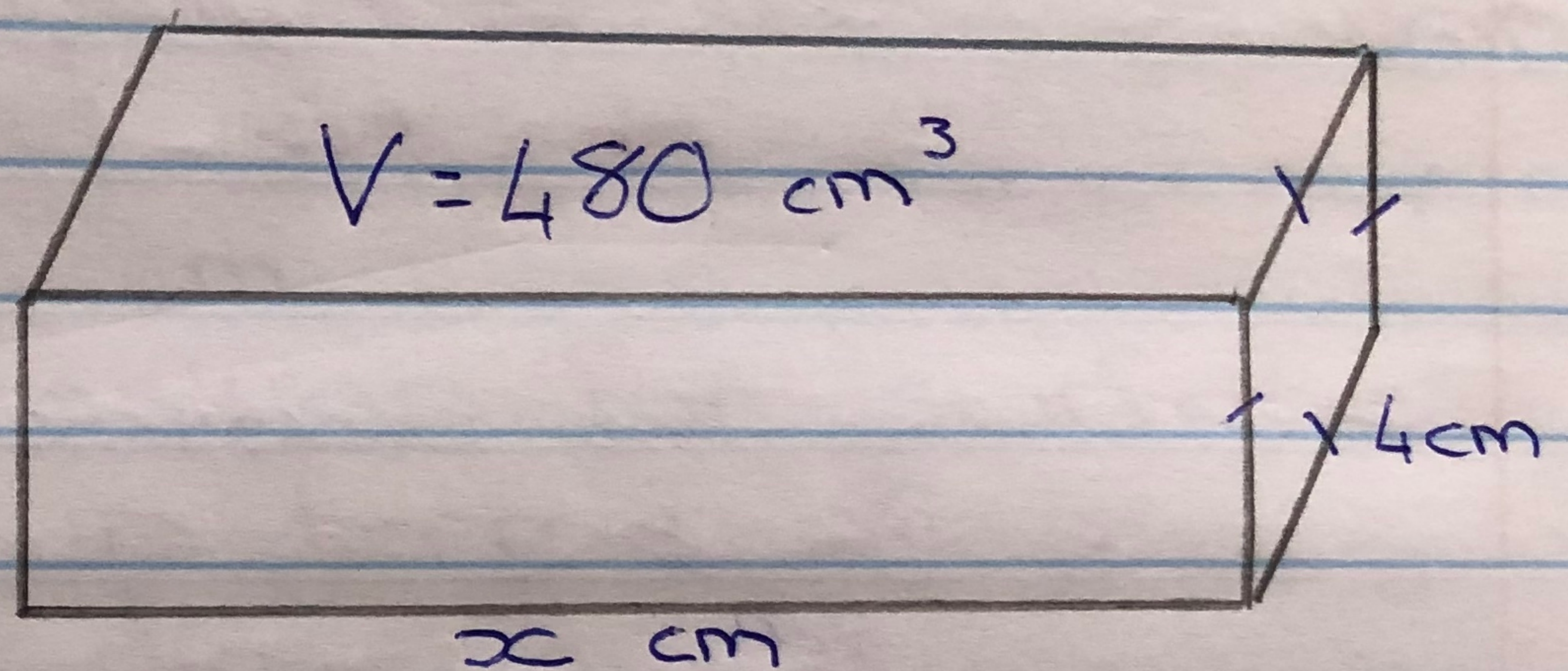
2) A farmer needs to fence a rectangular field using 100 m of fencing. He wants a rectangle that gives the largest Area.

a) Write an expression for the area of the rectangle has a length of (x) meter

b) what are dimensions of rectangle that will give largest Area.

- 4) A soda factory needs to make a cylindrical can that will hold 1,5 l of juice.
- a) show that the height of the can, can be expressed as; $h = \frac{1500}{\pi x^2}$, if radius is x cm.
- b) Write an expression for surface area of can in terms of x .
- c) Determine the dimensions of the can (1 decimal) that will minimize amount of material needed to make can.

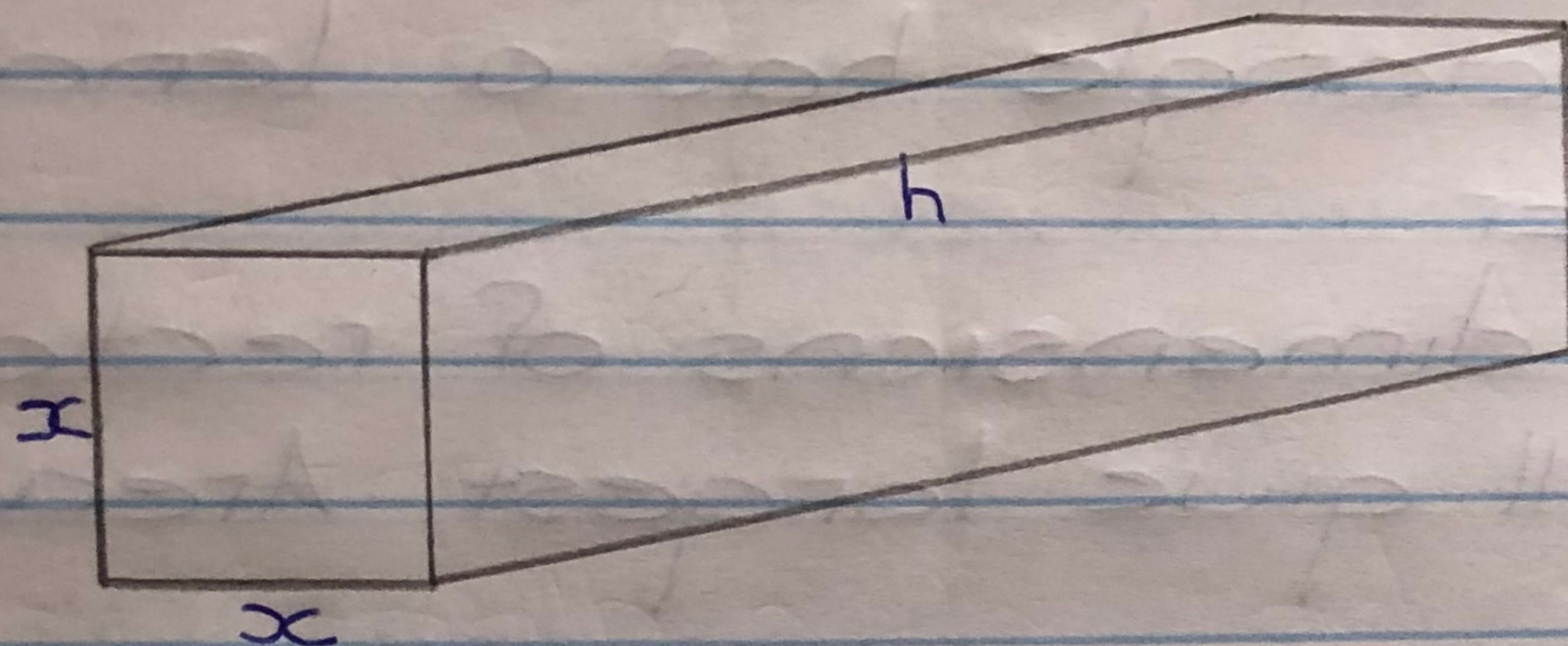
- 3) A 'open box' is shaped as a rectangular prism. The box has a Volume of 480 cm^3 , width of 4 cm and length of $(x) \text{ cm}$.



- a) Write an expression for the height of the box in terms of x .
- b) Hence, show that the total surface area is ; $A = 4x + \frac{960}{x} + 240$
- c) Determine the value of x for which the surface area is a minimum (to 2 decimal places)
- d) Determine the minimum surface area of the box.

Examples: (Area, SA, perimeter, Volume)

- 1) Consider the figure, which represents a container. The Volume of the container is 50 000 l.



- a) Write the area of material needed to manufacture the container in terms of x .
- b) Find the dimensions of the container that will ensure that minimum amount of material is used.