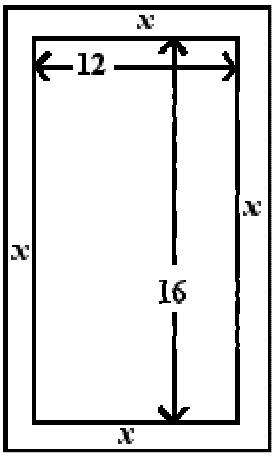
SUBJECT 6

Please, do not write on the exam paper

Exercise 1

A garden measuring 12 meters by 16 meters is to have a pedestrian pathway installed all around it, increasing the total area to 285 square meters.
We want to find the width *x* meters of the pathway.



1) Express the new area in terms of *x*.
Check that the area (in square meters) is given by : $4x^2 + 56x + 192$

2) Find the width of the pathway by solving a quadratic equation.

Exercise 2

You run a canoe-rental business on a small river in Ohio.
You currently charge $12 per canoe and average 36 rentals a day.
An industry journal says that, for every fifty-cent decrease in rental price, the average business can expect to get two extra rentals a day.

We denote by *x* the number of fifty cent decrease.

1) Show that the revenue function (in $) can be written as $-x^2 + 6x + 432$.

2) What should you charge to maximize your revenue?