

Question 1

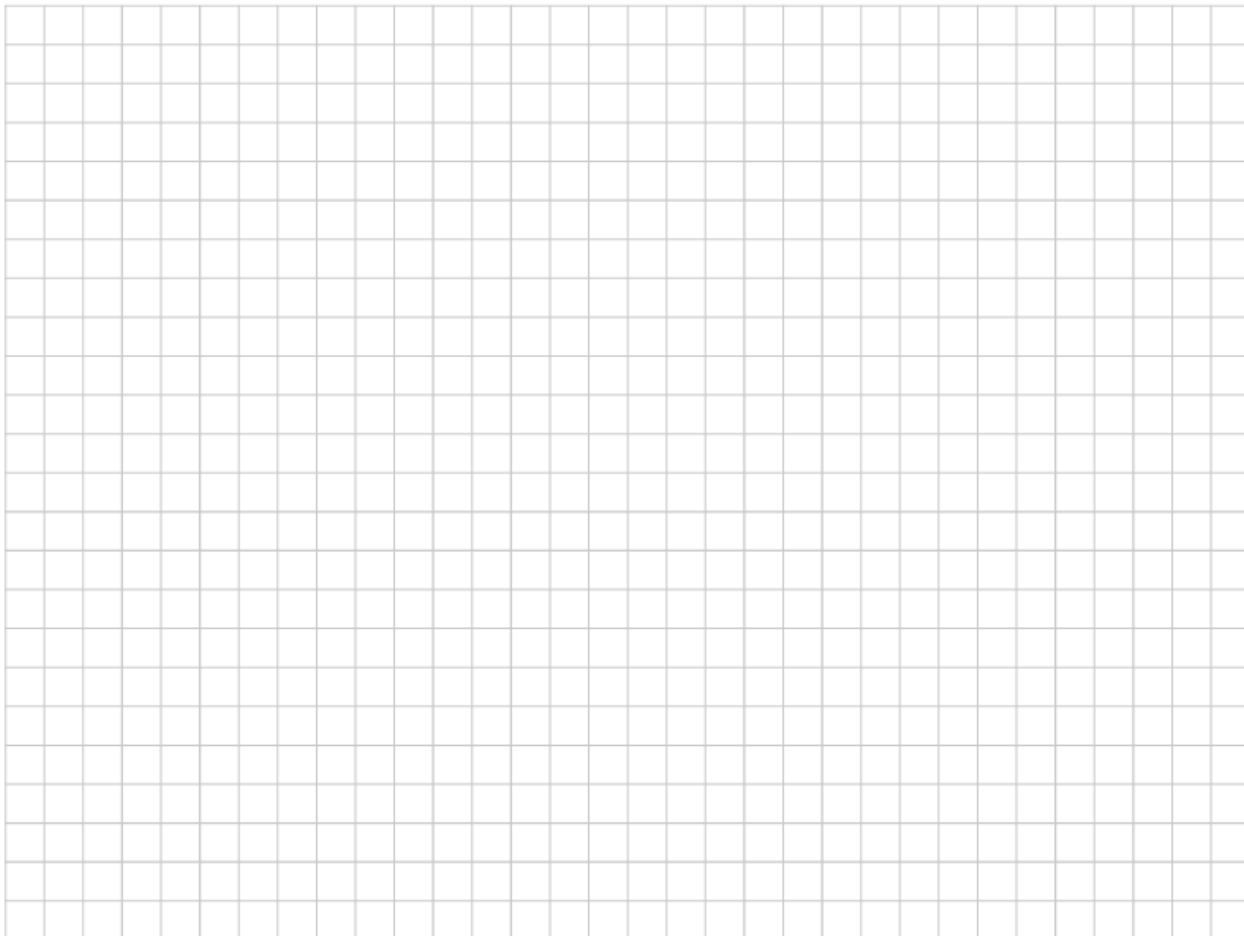
Higher Level Question

(Suggested maximum time: 10 minutes)

Mark works two jobs – he works in Bob’s Bakery and in Ciara’s Café. He is paid €11·50 an hour for his work in Bob’s Bakery, and €9·30 an hour for his work in Ciara’s Café.

In one week he worked a total of 34 hours and was paid a total of €362·40.

Find how many hours he worked in Bob’s Bakery in this week.



Question 4

A capacitor is a device which stores electricity. The formula $W = \frac{1}{2}CV^2$ gives the energy stored in the capacitor, where W is the energy, C is the capacitance and V is the voltage, and standard units are used throughout.

- (a) Find the amount of energy stored in a capacitor when $C = 2500$ and $V = 32$.

A large grid for working out the solution to part (a). The grid is 20 columns wide and 20 rows high.

- (b) Write V in terms of W and C .

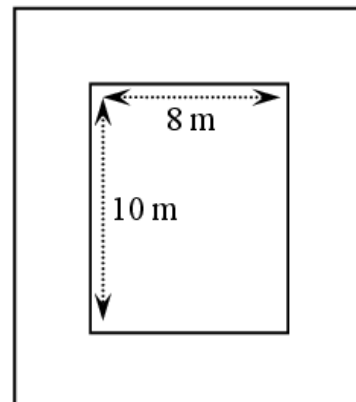
A large grid for working out the solution to part (b). The grid is 20 columns wide and 20 rows high.

Question 5

Question 9

(Suggested maximum time: 20 minutes)

A plot consists of a rectangular garden measuring 8 m by 10 m, surrounded by a path of constant width, as shown in the diagram. The total area of the plot (garden and path) is 143 m^2 .



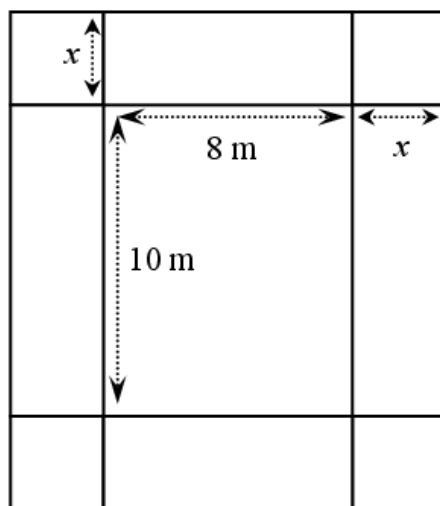
Three students, Kevin, Elaine, and Tony, have been given the problem of trying to find the width of the path. Each of them is using a different method, but all of them are using x to represent the width of the path.

Kevin divides the path into eight pieces. He writes down the area of each piece in terms of x . He then forms an equation by setting the area of the path plus the area of the garden equal to the total area of the plot.

(a) Write, in terms of x , the area of each section into Kevin's diagram below.

(b) Write down and simplify the equation that Kevin should get. Give your answer in the form $ax^2 + bx + c = 0$.

	Equation: _____
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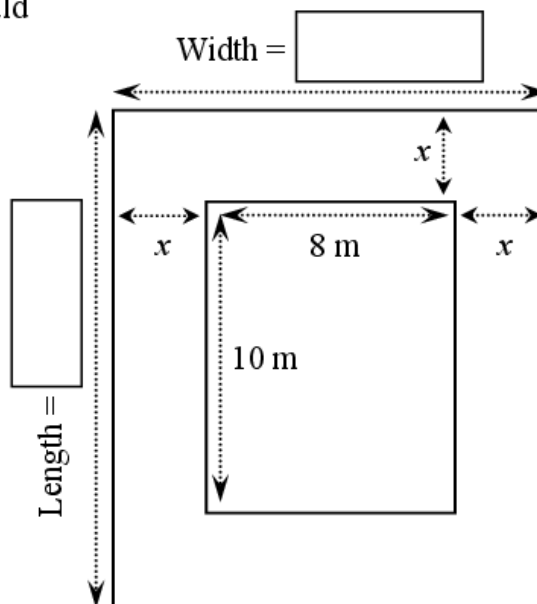
Kevin's Diagram

Elaine writes down the length and width of the plot in terms of x . She multiplies these and sets the answer equal to the total area of the plot.

(c) Write, in terms of x , the length and the width of the plot in the spaces on Elaine's diagram.

(d) Write down and simplify the equation that Elaine should get. Give your answer in the form $ax^2 + bx + c = 0$.

	Equation: _____
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Elaine's Diagram

