Using Quadratic Graphs to solve real – life questions;

Note; for all the questions below, plot the graph in Desmos graphing calculator and use your graph to answer the questions. (You do not need to paste the graph anywhere).

Question 1

A toy rocket is fired into the air from the top of a barn. Its height h metres above the ground in yards after t seconds is given by the function $h = -5t^2 + 10t + 20$.

a) What was the maximum height of the rocket?

_____m

b) How long was the rocket in the air before hitting the ground?

_____s

c) What was the initial height of the rocket?

_____m

Question 2

$h = -4.9t^2 + 8t + 5$ represents Jeremiah's height h in meters above the water t seconds after he leaves the diving board.

a) What is the initial height of the diving board?

_____m

b) At what time did Jeremiah reach his maximum height?

_____s

c) What was Jeremiah's maximum height?

_____m

d) How long was Jeremiah in the air?

_____s

Question 3.

Rachel sews some handbags for sell. The profit, $y, from selling the handbags at $x each can be modelled by the equation $y = -225 + 50x - x^2$

a) The maximum profit which Rachel can make and the selling price that yields this maximum profit.

Max profit $ _____ Selling price $ _____

b) The other selling price that yields no profit or loss,

$ 5 and $ _____

c) The selling prices of each handbag if the profit is $365. One has been done for you.(give your answer to 2 decimal places)

$ 19.08 and $ _____