**4.1 Solving by Graphing Homework Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Multimath

 \_\_\_\_\_/8C \_\_\_\_\_/20A

For each of the following questions, complete the following

* Rewrite the equation in terms of “y” and “x”
* Type your equation into the software
* Draw a rough sketch (including the axis) of the parabola that you see
* Identify what you are trying to find on your sketch (zeros, vertex, some sort of intersection…)
* State your solution.

1. The daily production cost of a special-edition toy car is given by the equation $C=0.2t^{2}-10t+650$

*C* is the cost in dollars, and *t* is the number of cars made.

1. How many cars must be made to minimize the production cost? (3A, 2C) *Sketch & label:*

*Rewrite:*

*Solution:*

1. What is the cost to produce that many cars? (1A)

*Solution:*

2. The equation $A=576w-2w^{2}$ models the area of a pasture enclosed by a rectangular fence, where *w* is the width in meters.

1. What is the maximum area that can be enclosed? (3A, 2C) *Sketch & label:*

*Rewrite:*

*Solution:*

1. Determine the area that can be enclosed using a width of 20m. Identify it on your sketch. (2A)

*Solution:*

*No more hints. Show your work fully!*

3. The height of a soccer ball is modelled by the equation $h=-4.9t^{2}+19.6t+0.5$ , where *h* is the height in meters and *t* is the time in seconds.

1. What is the maximum height the ball reaches? (3A, 2C) *Sketch & label:*
2. What is the height of the ball after 1 second? Identify it on your sketch. (2A)
3. When will the ball hit the ground? Identify it on your sketch. (2A)

4. The profit made at a fair depends on the price of the ticket. The profit is modelled by the equation $P=-37t^{2}+1776t-7500$ .

1. What is the maximum profit? (3A, 2C) *Sketch & label:*
2. What is the price of a ticket that gives the maximum profit? (1A)