MBF 3C: UNIT 5 – Factoring and Expanding with Quadratics
Lesson 8: Solving Problems

1. A parabola has the equation $y = -2x^2 + 12x - 10$

(a) write the equation in factored form
_____

(b) determine the zeroes
_____

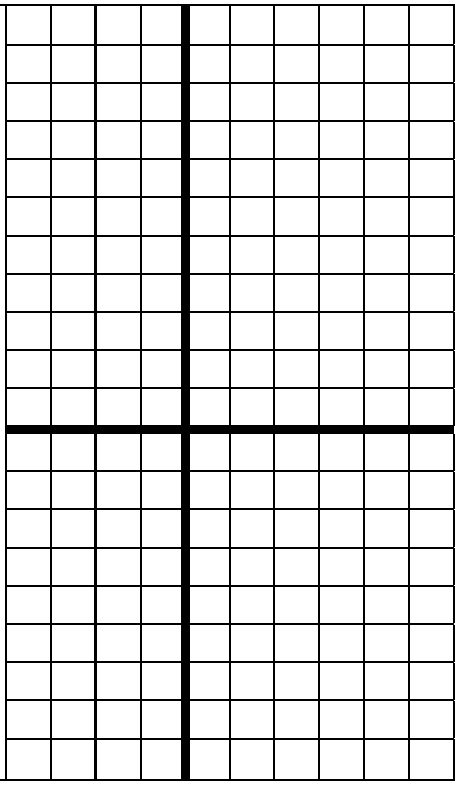
(c) determine the axis of symmetry
_____

(d) determine the vertex
_____

(e) determine the step pattern
_____

(f) graph the parabola at the right

(g) write the equation of the above parabola in vertex form



2. A cannonball is launched upwards. Its height is described by the equation $h = -5t^2 + 40t + 45$, where h is measured in yards and t is measured in seconds.

a) how high is the cannonball at 0, 1, and 2 seconds?

b) from what height was the cannonball launched?

c) factor the expression to find when the cannonball hits the ground

d) use your answers from (c) to find the maximum height of the cannonball and when it occurs.

Work with a partner to complete the following question:

On Planet X, the height, *h* metres, of an object fired upward from the ground at 48m/s is described by the equation $h = 48t - 16t^2$, where *t* seconds is the time since the object was fired upward.

Determine

(a) the maximum height of the object

(b) the times at which the object is 32m above the ground

(c) the time at which the object hits the ground

(d) the equation in vertex form

Individual Practice Problems:
Worksheet 4.6.3 and Page 142 #7,8