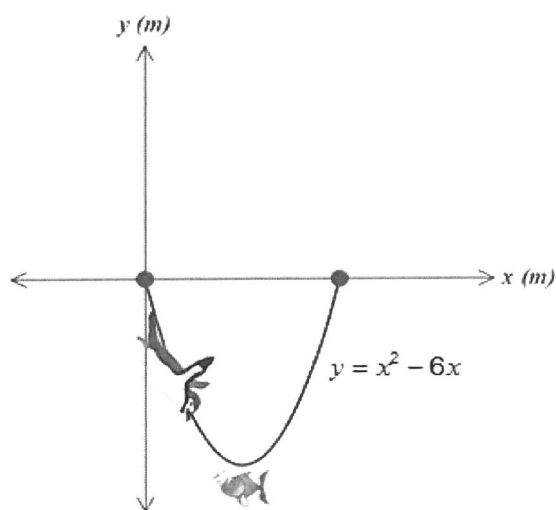## Quadratic - Converting to Vertex Form #2
Amanda Zito

Question 1

A penguin dives into the water to catch a fish and then returns to the surface as shown in the graph below.

If the x-axis is at the surface of the water and the y-axis represents the depth of the water in metres, how deep did the penguin dive at its lowest point in the water?
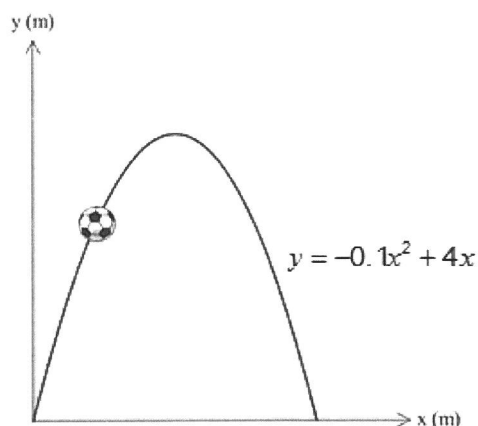

$y = x^2 - 6x$

Question 2

Determine the coordinates of the vertex of the following quadratic function and state whether the vertex represents a minimum or a maximum.

$$y = -x^2 + 8x + 9$$

Question 3

Malory kicked a ball during a game that followed the parabolic path shown in the graph below.

If the x-axis represents the ground and the y-axis represents the height of the ball, what was the maximum height of her kick?

$y = -0.1x^2 + 4x$

Question 4

Determine the coordinates of the vertex of the following quadratic function and state whether the vertex represents a minimum or a maximum.
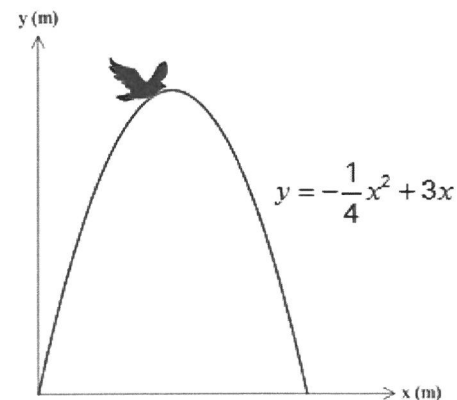
$y = x^2 + 4x - 3$

Question 5

Determine the coordinates of the vertex of the following quadratic function and state whether the vertex represents a minimum or a maximum.

$y = -3x^2 - 12x + 8$

Question 6

The graph below shows a bird flying along a parabolic path as represented by the equation given.

If the x-axis represents the ground and the y-axis its height, what was the maximum height of the bird?

$y = -\dfrac{1}{4}x^2 + 3x$

Question 7

Determine the coordinates of the vertex of the following quadratic function and state whether the vertex represents a minimum or a maximum.

$y = -x^2 + 4x + 1$

Question 8
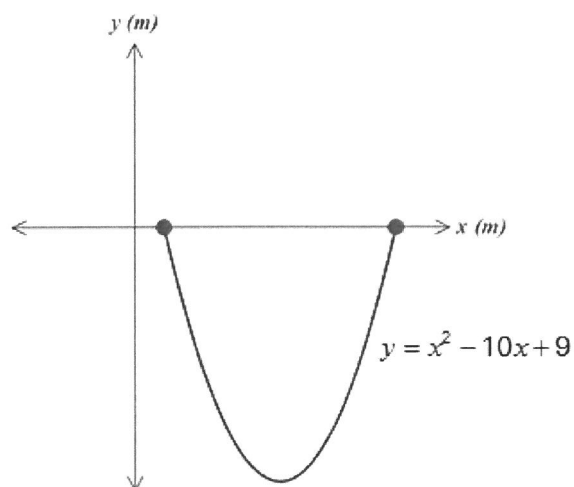
Determine the coordinates of the vertex of the following quadratic function and state whether the vertex represents a minimum or a maximum.

$y = x^2 + 2x - 6$

Question 9

A small *coulee* (or ravine) in Alberta has a parabolic shape like the one shown in the graph below.

If the x-axis represents the top of the ravine and the y-axis represents the depth of the ravine, what is the lowest depth that the ravine reaches as compared to the top of the ravine at the x-axis?

$y = x^2 - 10x + 9$

Question 10

Determine the coordinates of the vertex of the following
quadratic function and state whether the vertex represents
a minimum or a maximum.

$y = -x^2 - 10x + 6$