

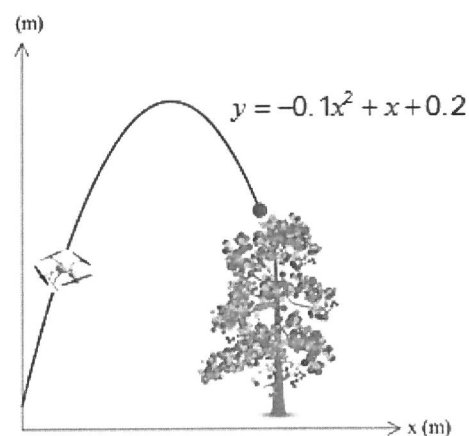
### Quadratic - Converting to Vertex Form #3

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#### Question 1

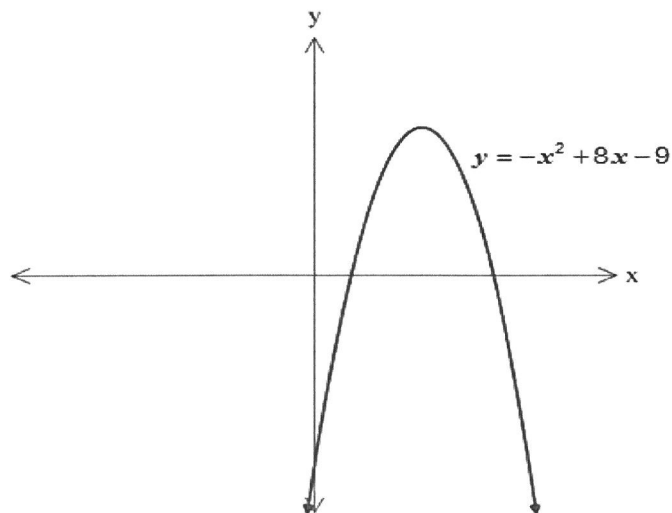
A drone flew along an abbreviated parabolic path as shown in the Cartesian plane below. It started at a height of 20 cm and flew until it crashed into a tree.

If the x-axis represents the horizontal distance in metres and the y-axis represents the height in metres, what was the maximum height that the drone reached during its flight?



#### Question 2

Given the function shown on the graph below, determine its **range**.



### Question 3

Sketch the graph of the following quadratic function and identify the vertex, the zeros and the y-intercept.

$$y = -x^2 - 6x - 8$$

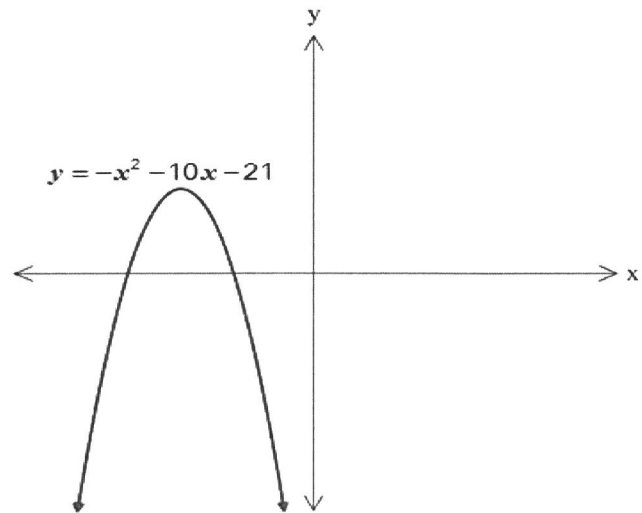
### Question 4

Sketch the graph of the following quadratic function and identify the vertex, the zeros and the y-intercept.

$$y = x^2 + 6x - 16$$

### Question 5

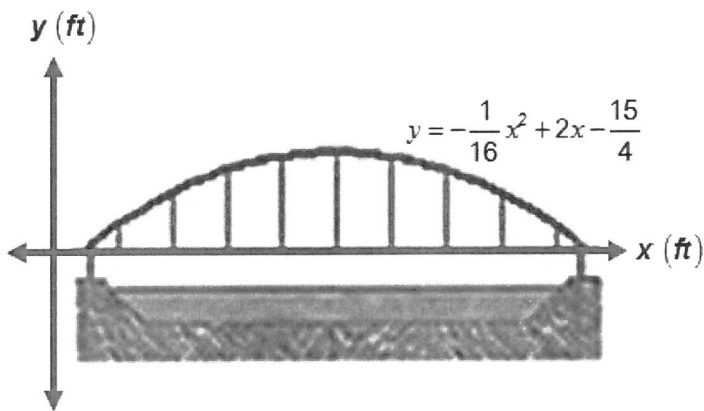
Given the function shown on the graph below, determine its **range**.



### Question 6

A bridge in Lennoxville, Quebec had very notorious arches across it in the 1990s. The bridge has been superimposed onto the Cartesian plane below.

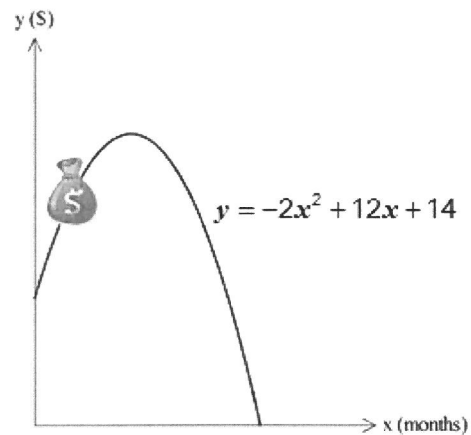
Given that the arches have a parabolic shape as shown in the graph, what was the maximum height of the arches on this bridge? Please round your answer to the nearest foot.



### Question 7

The graph shown below represents the price of a stock over a certain period of time. The value of this stock follows a parabolic path and is defined by the equation given in the graph. The x-axis represents the number of months it has been listed on the stock market and the y-axis represents the value of the stock.

For how many months did the stock's value increase after it was first listed on the market at \$14 per share?



### Question 8

Sketch the graph of the following quadratic function and identify the vertex, the zeros and the y-intercept.

$$y = x^2 - 4x - 12$$

### Question 10

Sketch the graph of the following quadratic function and identify the vertex, the zeros and the y-intercept.

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

### Question 9

The distance-time graph shown below was used to track the flight of a distress signal shot from a flare gun. It followed the parabolic path that is represented by the equation given in the graph.

After how many seconds did it reach its maximum height?

