Maximum and Minimum Values

To find maximum and maximum values of a quadratic, we need the vertex.

If we are given a standard form equation, we can:

A. Complete the square to get vertex form
B. Find the factored form and then determine the vertex.
C. Find two symmetrical points and then determine the vertex.
D. Use the quadratic formula to find the zeros, then determine the vertex.

Example

A golfer attempts to hit a golf ball over a gorge from a platform above the ground. The function that models the height of the ball is: $h(t) = -5t^2 + 40t + 100$ where *h(t)* is the height in meters at time t seconds after contact. There are power lines 185 m above the ground. Will the ball hit the lines?

A. Complete the square to get vertex form

$$h(t) = -5t^2 + 40t + 100$$

B. Find the factored form and then determine the vertex.

$$h(t) = -5t^2 + 40t + 100$$

C. Find two symmetrical points and then determine the vertex.

$$h(t) = -5t^2 + 40t + 100$$

D. Use the quadratic formula to find the zeros, then determine the vertex.

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