Solving Quadratics

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We can solve quadratics by:

1.

2.

3.

4.

Anthony owns a business that sells parts for electronic game systems. The profit function for his business can be modelled by the equation $P(x) = -0.5x^2 + 8x - 24$, where x is the quality sold, in thousands, and $P(x)$ is the profit in thousands of dollars.

How many parts must he sell to break even?
Solve using two different methods.

A water balloon is catapulted into the air from the top of a building. The height, $h(t)$, in metres, of the balloon after t seconds is $h(t) = -5t^2 + 30t + 10$.

    a. **What are the domain and range of this function?**

    b. **When will the balloon reach a height of 30 m?**

A factory is to be built on a lot that measures 80 m by 60 m. A lawn of uniform width, equal to the area of the factory, must surround it.

How wide is the strip of lawn, and what are the dimensions of the factory?