

Quadratic Word Problems

1. A model rocket is shot straight up from the roof of a school. The height, h , in metres, after t seconds can be approximated by $h = 15 + 22t - 5t^2$.
 - a) What is the height of the school?
 - b) How long does it take for the rocket to pass a window that is 10 m above the ground?
 - c) When does the rocket hit the ground?
 - d) What is the maximum height of the rocket?

2. A biologist predicts that the deer population, P , in a certain national park can be modelled by $P = 8x^2 - 112x + 570$, where x is the number of years since 2009.
 - a) According to this model, how many deer were in the park in 2009?
 - b) In which year was the deer population a minimum? How many deer were in the park at this point?
 - c) Will the deer population ever reach zero according to this model?

3. Tickets to a school dance cost \$5, and the projected attendance is 300 people. For every \$0.50 increase in the ticket price, the dance committee projects that attendance will decrease by 20. What ticket price will generate \$1562.50 in revenue?

4. The Next Cup coffee shop sells a special blend of coffee for \$2.60 per mug. The shop sells about 200 mugs per day. Customer surveys show that for every \$0.05 decrease in the price, the shop will sell 10 more mugs per day.

a) How much does the shop currently earn in revenue?

b) Determine the maximum daily revenue from coffee sales and the price per mug for this revenue.

c) What price can be charged if the shop wants daily earnings of \$500?