Quadratic Applications

Pom Pons

$20   Sell 50

↑$2   Sell 3 less

Maximize Revenue

$Rev = \$20 \cdot 50 = \$1000$

(price)(# sold)

$R = (20+2x)(50-3x)$

$x = \#$ of price changes

FOIL
$x = -\dfrac{b}{2a}$

Solve factor.

$x-int = \underline{\quad}$

$x = \dfrac{p+q}{2}$

$20+2x = 0$
$2x = -20$
$\underline{x = -10}$

$50-3x = 0$
$50 = 3x$
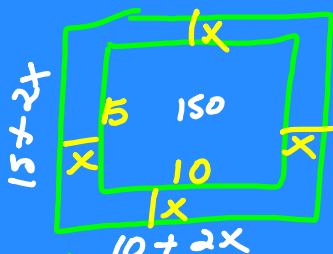$\underline{\dfrac{50}{3} = x}$

Vertex:
$x = \dfrac{-10+\frac{50}{3}}{2}$

$15+2x$

1x

5   150

x   10

1x

$10+2x$

How wide is strip?

Solve for x.

$(15+2x)(10+2x) = 300$

FOIL
set = 0

Factor or quadr. formula

Rev = $300x - 2x^2$

Cost = $20x + 1000$

Maximize profit.

Profit = Revenue − Cost

PROJECTILE MOTION

$h(t) = \dfrac{1}{2}at^2 + v_0 t + s_0$

How high will it go?

Vertex =
$x = -\dfrac{b}{2a}$

When will it reach 5 ft?

$S = -16t^2 + \cdots$

set = 0

Solve with quadr. formula