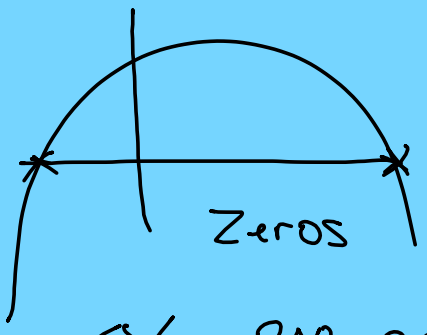
a) $2x^2+8x+3=4x^2+5x-1$



5% 200 pairs @ $120 = 200·120 = 24,000

↑ $2 sell 2 less

Maximize revenue.

R = (# sold)(price)

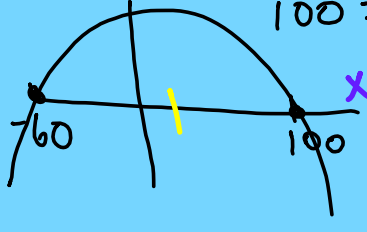
x = # of price change

$R = (200-2x)(120+2x)$

$200-2x=0$ or $120+2x=0$

$200=2x$ $2x=-120$

$100=x$ $x=-60$



$x=\frac{100+-60}{2}=20$

price = 120 + 2(20) = $160

Sell = 200 − 2(20) = 160 pairs

Rev = 160 · $160 = 25600

Solving Quadratics By Factoring

F O+I L

$x^2 - 8x + 12 = 0$

1 12
2 6
3 4

$(x-2)(x-6)=0$

$-2x$

$-6x$

$x-2=0 \quad x-6=0$

$x=2 \quad x=6$

1) Graph on calculator + find zeros.
2) Factoring
3) Completing the Square
4) Quadratic Formula

$x^2 + 2x = 63$ ← set = 0 make x^2 +

$x^2 + 2x - 63 = 0$

9 7
3 21
1 63

$(x+9)(x-7)=0$

$9x$

$-7x$

$x+9=0 \quad x-7=0$

$x=-9 \quad x=7$

$2x^2 = 7x + 15$

$2x^2 - 7x - 15 = 0$

$(2x + 3)(x - 5) = 0$

$+3x$

$-10x$

$2x + 3 = 0 \quad x - 5 = 0$

$x = -3/2 \quad x = 5$

$1 \quad 15$

$3 \quad 5$

$12x^2 + 9x - 30$

$3(4x^2 + 3x - 10)$

$1 \quad 10$

$5 \quad 2$

$3(4x - 5)(x + 2)$

$-5x$

$+8x$

$4x - 5 = 0 \quad x + 2 = 0$

$4x = 5 \quad x = -2$

$x = 5/4$

Quadratics with 2 terms

$x^2 - 25 = 0$

$(x+5)(x-5) = 0$

$x+5=0 \quad x-5=0$

$x=-5 \quad x=5$

$9x^2 - 64 = 0$

$(3x+8)(3x-8) = 0$

$3x+8=0 \quad 3x-8=0$

$x=-8/3 \quad x=8/3$

$4c^2 = 20c$

$4c^2 - 20c = 0$

pull out common factors

$4c(c-5) = 0$

$\frac{4c}{4} = \frac{0}{4} \quad c-5=0$

$c=0 \quad c=5$

$4(x+5)^2 + 1 = 81$

$-1 \quad -1$

$\frac{4(x+5)^2}{4} = \frac{80}{4}$

$\sqrt{(x+5)^2} = \sqrt{20}$

$x+5 = \pm 2\sqrt{5}$

$x = -5 \pm 2\sqrt{5}$

Roots: $\frac{2}{3}, -7$

Find eq.

Reverse factoring.

$x = -7$ $\quad x = \frac{2}{3}$

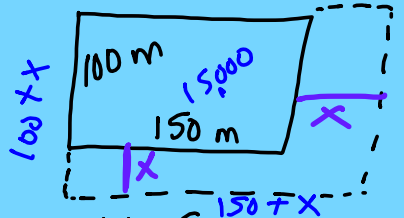
$x + 7 = 0$ $\quad 3x = 2$

$3x - 2 = 0$

$(x+7)(3x-2) = 0$ FOIL

$3x^2 - 2x + 21x - 14 = 0$

$3x^2 + 19x - 14 = 0$



Double Size.

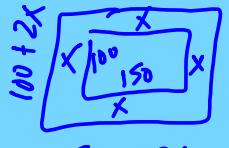
How big is strip

$(100 + x)(150 + x) = 39{,}000$

FOIL

Set = 0

Factor



$150 + 2x$