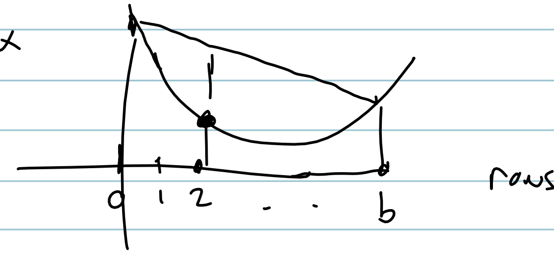
Math 340, Dec 4

Recall:

$$\begin{array}{ll} \text{row } \#0 & \\ \text{row } \#1 & \\ \vdots & \\ \text{row } \#52 & \end{array} \begin{bmatrix} f_1(0) & f_2(0) \\ f_1(1) & f_2(1) \\ f_1(2) & \vdots \\ \vdots & \vdots \\ \vdots & \text{"} \end{bmatrix}$$

(1) If f_1, f_2 $(f_3, \ldots)$ are all convex



Alice will play extreme rows

for $b_0 < b < b_1$

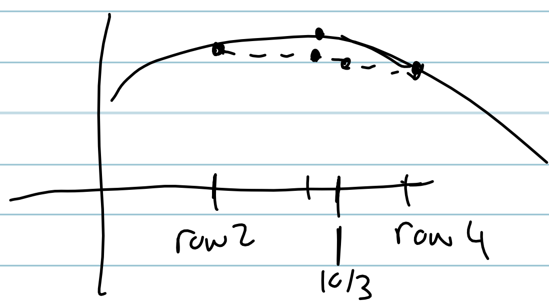
there's always weighting

$$f(b) \le f(b_0) \text{ (weight 1)}$$
$$f(b_1) \text{ (weight 2)}$$

fixed functions of b_0, b, b_1

Play row 5?, when she can play row 0, and row 52, not if $f_1, \ldots$ convex

Concave down



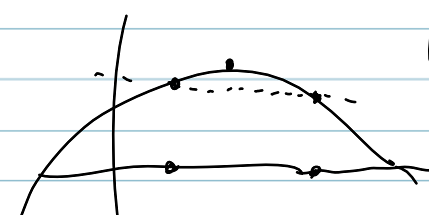
$$\tfrac{1}{3}\text{ row } 2 + \tfrac{2}{3}\text{ row } 4$$

$$\le \text{row}\left(\tfrac{1}{3}\cdot 2 + \tfrac{2}{3}\cdot 4\right)$$

$$\text{row}\left(\tfrac{10}{3}\right)$$

when f concave down

$(-f \text{ convex})$



better to go to a single middle point

Not $b \in [0, 52]$

really $b = 0, 1, \ldots, 52$

x^2	0	0
	1	-1
	4	-4
	9	-9
	16	$\vdots$
	$\vdots$	

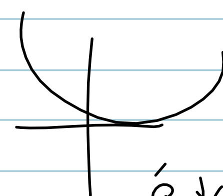
[Hint! Col 1 is given by

$$3x^2 - 4x + 5$$

Poker game!

$$\begin{array}{cc} & \begin{array}{cc} \phantom{\text{quadratic funct}} & \text{Folds} \end{array} \\ \begin{array}{c}\text{Alice} \\ \text{row} \\ b\end{array} & \begin{bmatrix} \vdots & \vdots \\ \text{quadratic funct} & \dfrac{2b-52}{52} \\ \vdots & \vdots \end{bmatrix} \end{array}$$

negative b^2 term



$a>0$ convex

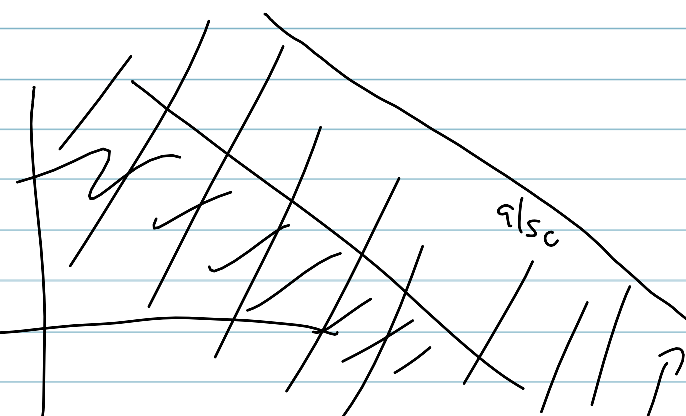
ax^2+bx+c

concave down

$a<0$

can also argue
Part (e) of Dec 2014

If you have basic variables,
A_B has to be invertible



always has slack $\longrightarrow$ never relevant