

b)  $b=1$   $c=1$

C)  $b = -1$   $c = -1$

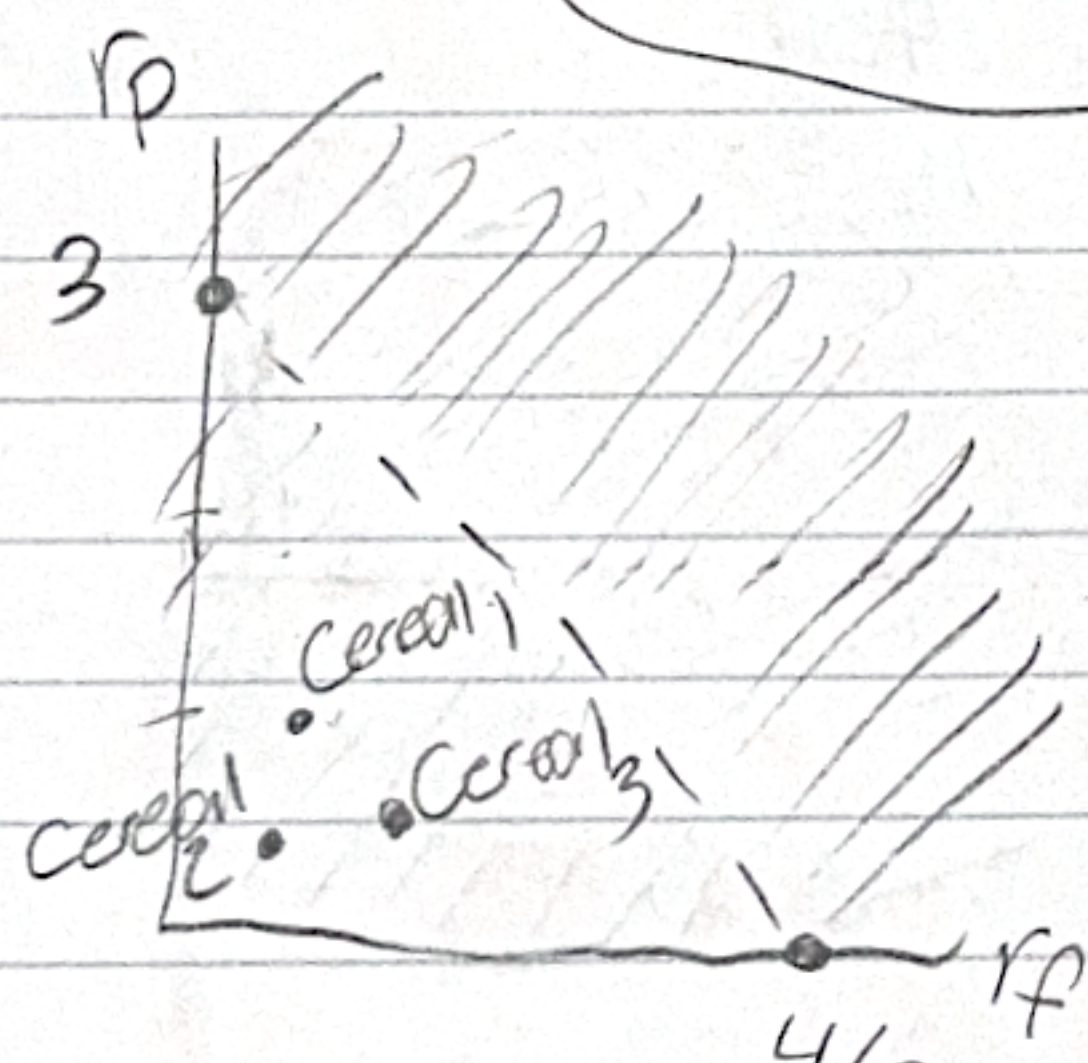
2)  $x = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix}$   $w = \begin{bmatrix} 9 \\ 4 \\ 4 \end{bmatrix}$   $y = 9x_1 + 4x_2 + 4x_3$

Low carb -  $\frac{1}{4} > \frac{4x_3}{9x_1 + 4x_2 + 4x_3} \rightarrow 16x_3 < 9x_1 + 4x_2 + 4x_3$   
 $0 < 9x_1 + 4x_2 - 12x_3$   $\left( \begin{matrix} 9 \\ 4 \end{matrix} \right)$

$$\tilde{W} = \begin{bmatrix} 9 \\ 4 \\ 12 \end{bmatrix}$$

$$b) \quad \frac{9x_1 + 4x_2 - 12x_3}{x_3} \quad 9 \frac{x_1}{x_3} + 4 \frac{x_2}{x_3} - 12 > 0$$

$$9r + 4r > 12$$



D) On graph

Cereal 4 is  
Low carb

cereal 4

Almond  
Butter

E) Yes

F) Yes

3a)  $[2 \ -3]^T$  and  $[1 \ 0]^T$   
 3b)  $[0 \ -1]^T$   $[2 \ -3]^T$   $[3 \ 2]^T$   
 3c)  $[2 \ -3]^T$  Not all classes

Not all classes  
are fair

3)	$w = [0, -1]^T$	- Error - 4	RE - 2	BE - 2
▷	$w = [2, -3]^T$	- Error - 2	RE - 1	BE - 1
▷	$w = [3, -2]^T$	- Error - 4	RE - 1	BE - 3
▷	$w = [1, 0]^T$	- Error - 2	RE - 0	BE - 2
▷	$w = [3, 2]^T$	- Error - 4	RE - 2	BE - 2
▷	$w = [2, 3]^T$	- Error - 6	RE - 4	BE - 2