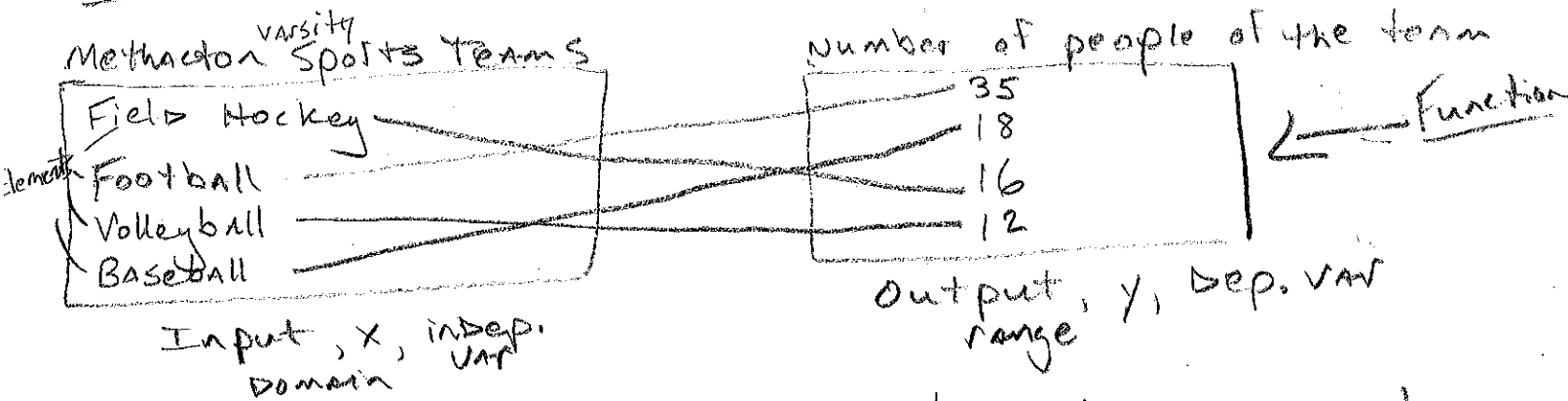
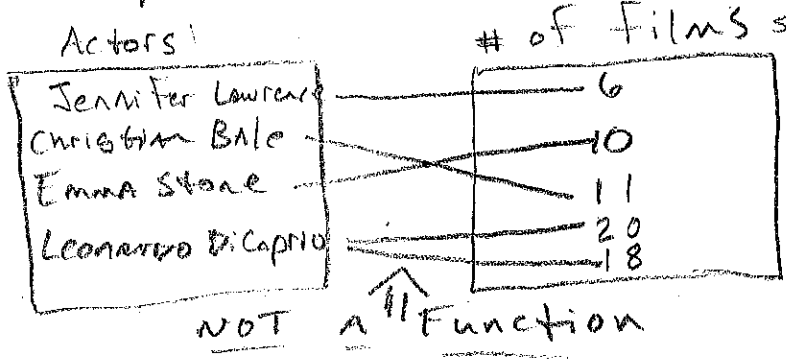


- A relation is a correspondence b/w 2 sets



- A function is a relation that associates with each input, exactly one output.



Been a little confused ever since his tour on the Titanic, or maybe that ~~happened~~ ^{happened} when we ~~got~~ ^{got} ~~stayed~~ in the Departures, ~~the~~ ^{the} alternative plan ran to his brain when Jack Nicholson busted his cast open to make sure he could be trusted

- Did whether the following relation is a function - State Domain & Range.

- a.) $\{(2,5), (3,6), (4,7), (5,9)\}$ Function; $D = \{2,3,4,5\}$; $R = \{5,6,7,9\}$
- b.) $\{(-1,5), (0,2), (-1,-6), (4,2)\}$ NOT A FUNCTION [x's repeat]; $D = \{-1,0,4\}$; $R = \{-6,2,5\}$

- Det whether an equ is a function [only if it can be written explicitly [in "y=" form where there is only 1 function on other side]

implicit: $2x + y = 4$; explicit: $y = 3x^2 - 2$; implicit $3x + y^2 = 4$; explicit $y = -6x^3 - 2$

- Find values of a function - If $f(x) = x^2 - 4$, find $f(2)$, $f(-x)$, $f(3x)$, $f(x-2)$

* $f(-x) \neq -f(x)$

- ~~Pattern~~ To find domain of a function, set denom equal to zero + solve \rightarrow these values are what "x \neq "

Ex. $f(x) = \frac{x}{x^2 - 1} \rightarrow \frac{x}{(x+1)(x-1)}$ $D = \{x | x \neq 1, -1\}$

Ex. $f(x) = \frac{9}{\sqrt{x-5}}$ $\rightarrow D = \{x | x > 5\}$

- Operations of functions: If $f(x) = 3x + 5$ + $g(x) = 2x - 4$ Find $f+g$, $f-g$, $f \cdot g$, $\frac{f}{g}$

- Diff Quotient (used very often in Calc to develop idea of a derivative)

$\frac{f(x+h) - f(x)}{h}$ if $f(x) = x + 2$ $\frac{(x+h) + 2 - (x+2)}{h} = \frac{h}{h} = 1$