Kha L

CSC 2259 2/11/30

I have something(s) that I want

- $H \cap W \neq \emptyset$

I have everything that I want

- $H \supseteq W$

I have nothing that I want

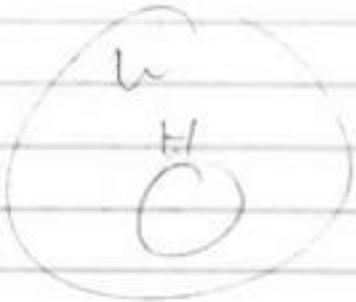
- $H \cap W = \emptyset$ (I want nothing I have)

I don't have anything I don't want.

$W^c \subseteq H^c$

$\downarrow$

$W \supseteq H$



I don't have everything I want

- $H \cap W = \emptyset$

$H = W$

$|H| = |W|$

I have the same number of things as I want.

I have as many things as I want.

$|H| \geq |W|$

$H, W \subseteq \{a, b, c, d\}$

(ways of choosing H, W such that $H = W$)

$= 2^4 = 16$

(. . . . $H \subseteq W$) $H = \emptyset, W = \emptyset, \{a\}, \{b\}, \ldots, \{a, b, c, d\}$

$|H| = 0$, # (W's) = 16
$|H| = 1$, # (W's) = 8, 4 such cases a, b, c, and d
$|H| = 2$, # (W's) = 4, 6 such cases ab, ac, ad, bc, bd, cd
$|H| = 3$, # (W's) = 2, abc, abd, acd, bcd
$|H| = 4$, # (W's) = 1, abcd

(H and W such that $H \subseteq W$)

$= ((4,0) \times 2^4 \times 1^0$
$+ ((4,1) \times 2^3 \times 1^1$
$+ ((4,2) \times 2^2 \times 1^2$
$+ ((4,3) \times 2^1 \times 1^3$
$+ ((4,4) \times 2^0 \times 1^4$

$1 \times 16 = 16$
$2 \times 32 = 32$
$6 \times 4 = 24$
$4 \times 2 = 8$
$1 \times 1 = 1$
81

I always make sense

$$\sum_{m=0}^{n} ((n,m) x^{n-m} y^m$$