$$(A\cup B)\setminus(A\cap B) = (A\setminus B)\cup(B\setminus A)$$

Distr. De Morgan

$$(A\cup B)\cap(A\cap B)^c = \left(A\cap\underbrace{(A\cap B)^c}_{=(A^c\cup B^c)}\right)\cup\left(B\cap(A\cap B)^c\right)$$

$$=\left(\cancel{(A\cap A^c)}\cup(A\cap B^c)\right)\cup\left((B\cap A^c)\cup\cancel{(B\cap B^c)}\right)$$

$$=\underbrace{(A\cap B^c)}_{(A\setminus B)}\cup\underbrace{(B\cap A^c)}_{=(B\setminus A)} = (A\setminus B)\cup(B\setminus A)$$

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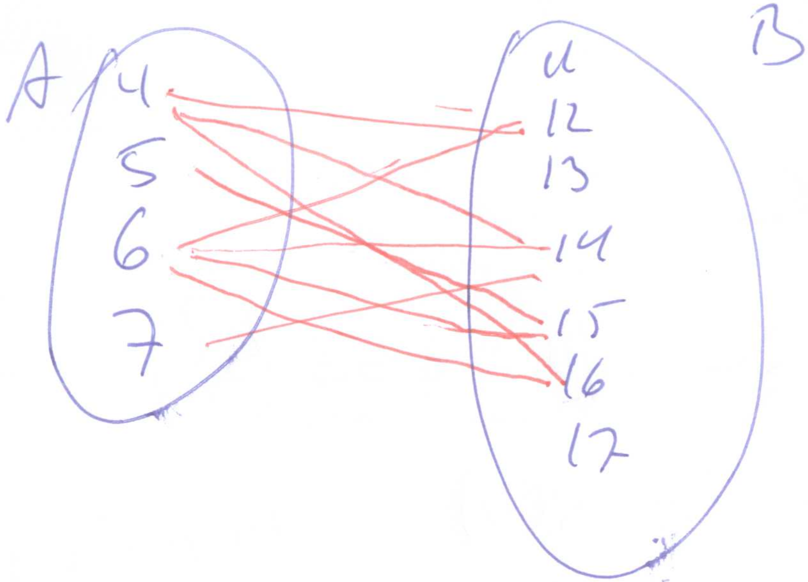

$R = \{(4,12), \ldots\}$

Function : Interpret relation (a,b) as fct: $a \mapsto b$

exactly one pair for every a.

$x^2 - x + 2 = y$ Solve for x

$(x-\frac{1}{2})^2 - \frac{1}{4} + 2 = (x-\frac{1}{2})^2 + \frac{7}{4}$

$x = \sqrt{(y-\frac{7}{4})} + \frac{1}{2}$

swap x/y

$y = \sqrt{(x-\frac{7}{4})} + \frac{1}{2}$

Composition of relations:

$R \subseteq A \times B, \quad S \subseteq B \times C$

$S \circ R = \{ (a, c) \mid aRb, bSc \text{ for some } b \in B \}$

$b = R(a) \quad c = S(b)$

unique, eg $b = R(a)$

Functions:

$S \circ R = \{ (a, S(R(a))) \}$