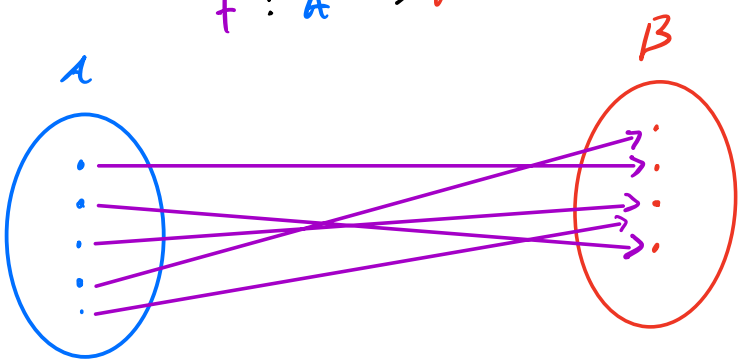
Kapittel 7

Funksjoner

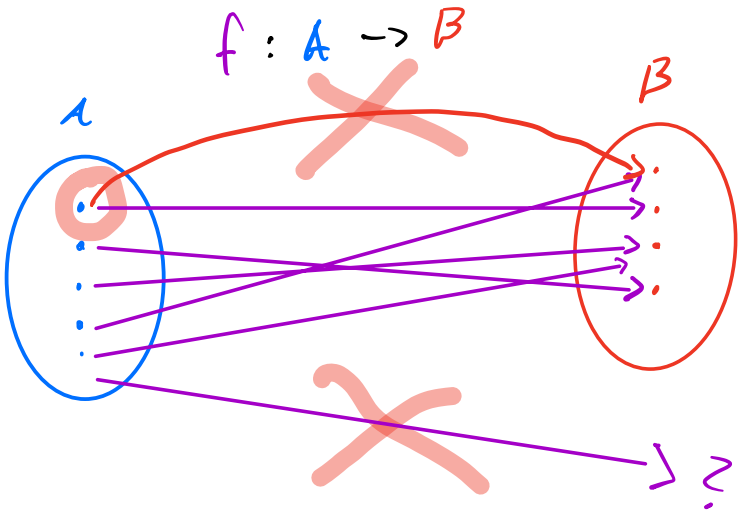
$f : A \to B$

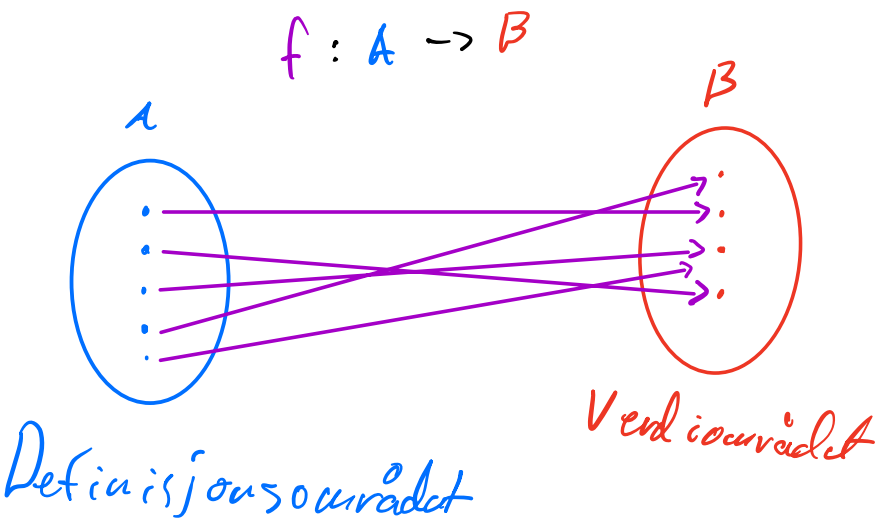


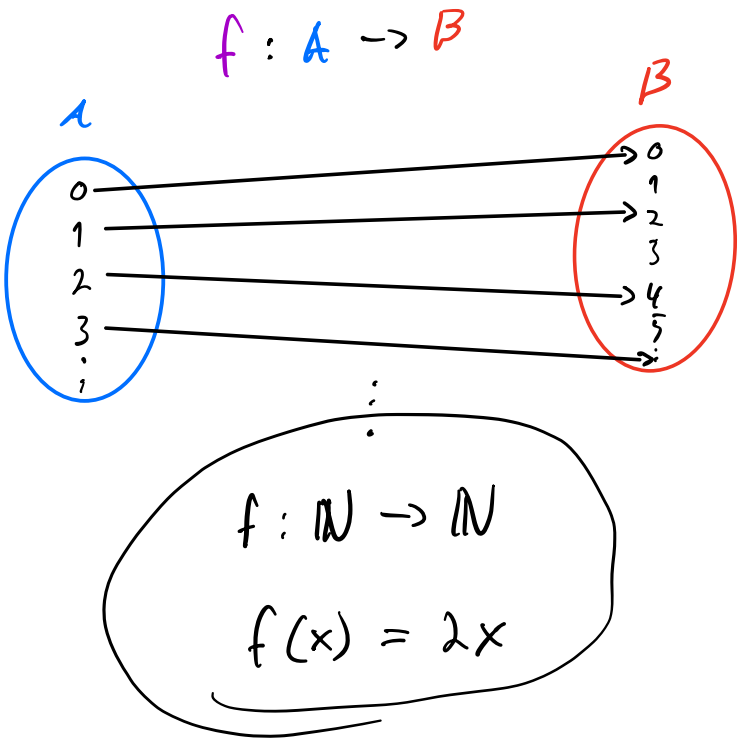
$x \in A$ $\qquad$ $y \in B$

$f(x) = y$

En funksjon er en binær relasjon slik at <u>for alle</u> $x \in A$ så finnes det <u>nøyaktig ett</u> element $y \in B$ slik at $\langle x, y \rangle \in f$.


f : A -> B
A
B
?


f : A -> B
A
B
Definisjonsområdet
Verdiområdet



f er en mengde med tupler på formen $\langle x, 2x \rangle$

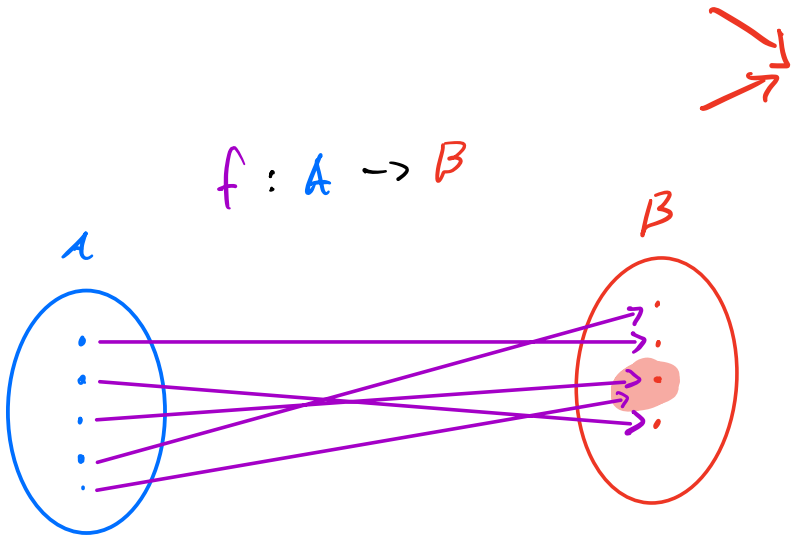
$$\mathbb{N} \times \mathbb{N} = \{\langle 0,0\rangle, \langle 0,1\rangle, \langle 0,2\rangle, \ldots \langle 1,0\rangle, \langle 1,1\rangle, \langle 1,2\rangle, \ldots \ldots \ldots \ldots \ldots \}$$

$pluss : \mathbb{N} \times \mathbb{N} \to \mathbb{N}$

$pluss(\langle x, y\rangle) = x + y$

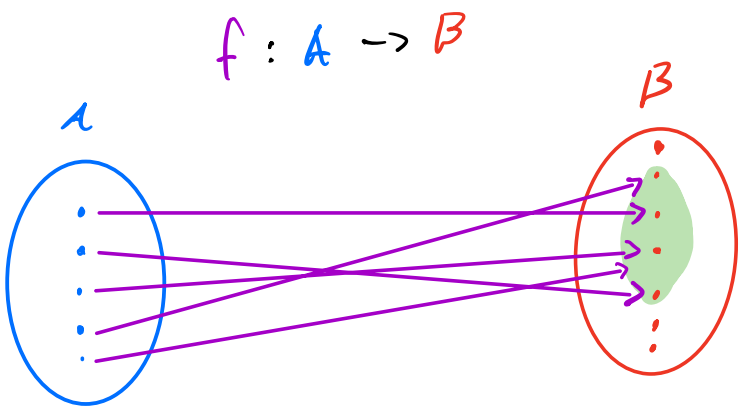
$pluss(x, y) = x + y$ ← Notasjon

Injektiv (ingen krangling om plassen)



hvis $x \neq y$ så $f(x) \neq f(y)$

Bildemengden (det som blir truffet)



$f[X]$ hvor $X \subseteq A$ så er

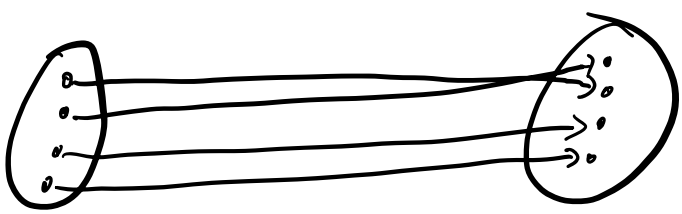
$\{f(x) \mid x \in X\}$ ← bildet av X under f

$f[A]$ kalles bildemengden

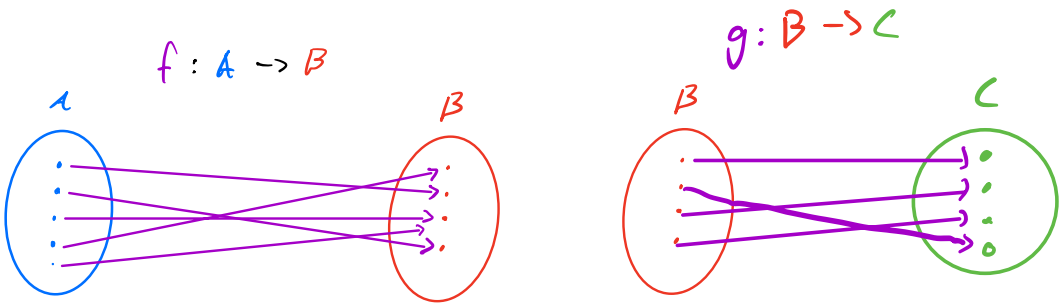
Surjektiv (Alt blir truffet)

Bildemengden og verdimengden er like.

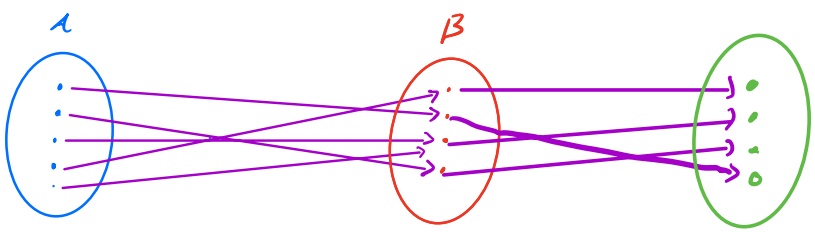
Bijektiv (En-til-en korrespondanse)

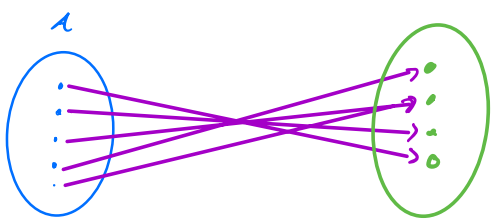


funksjonssammensetting



$g \circ f : A \to C$





$$(g \circ f)(x) = g(f(x))$$