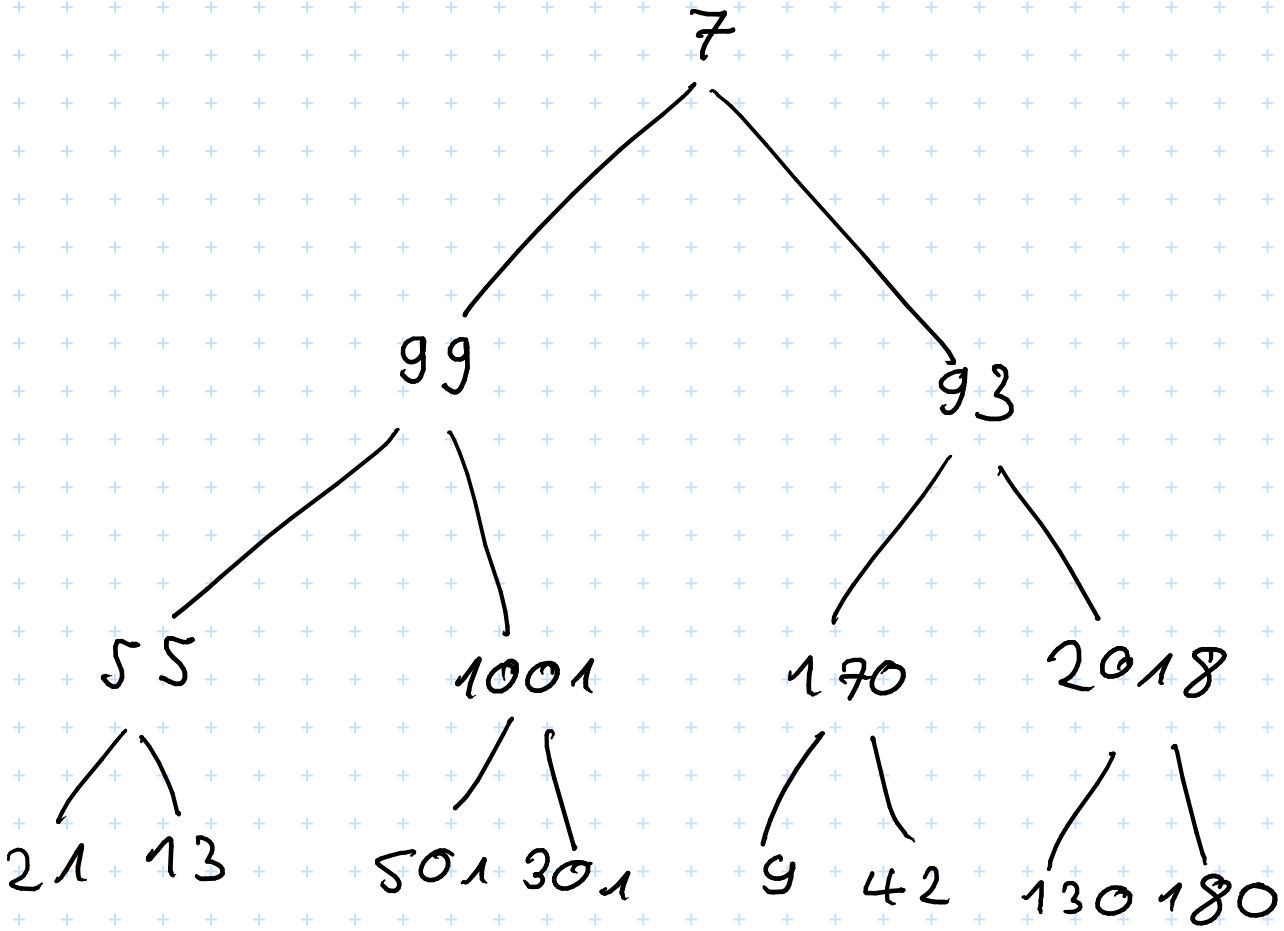
1) a)



3)

a)

map :: (a -> b) -> [a] -> [b]

iterate :: (c -> c) -> c -> [c]

gesucht: map iterate, γ ([a] -> [b])

G	E
$\emptyset$	$\{a \to b \doteq (c \to c) \to c \to [c]\}$
$\emptyset$	$\{a \doteq (c \to c),\ b \doteq c \to [c]\}$
$\{a \mapsto (c \to c),$ $b \mapsto c \to [c]\}$	$\emptyset$

=> map iterate :: $[c \to c] \to [c \to [c]]$ //

b)

gesucht: iterate map, γ (c -> [c])

G	E
$\emptyset$	$\{c \to c \doteq (a \to b) \to [a] \to [b]\}$
$\emptyset$	$\{c \to (a \to b),\ c \to [a] \to [b]\}$
$\{c \mapsto (a \to b)\}$	$\{a \to b \doteq [a] \to [b]\}$
"	$\{a \doteq [a],\ b \doteq [b]\}$
	Occurs check

c)

iterate :: $(c \to c) \to c \to [c]$

flip :: $(d \to e \to f) \to (e \to d \to f)$

const :: $g \to h \to g$

iterate flip const

gesucht: $\gamma([c])$

G	E
$\emptyset$	$\{c \to c \doteq (d \to e \to f) \to (e \to d \to f),\ c \doteq g \to h \to g\}$
$\emptyset$	$\{c \doteq (d \to e \to f),\ c \doteq (e \to d \to f),\ c \doteq g \to h \to g\}$
$\{c \mapsto (d \to e \to f)\}$	$\{d \to e \to f \doteq e \to d \to f,\ d \to e \to f \doteq g \to h \to g\}$
"	$\{d \doteq e, e \doteq d, f \doteq f, d \doteq g, e \doteq h, f \doteq g\}$
$\{c \mapsto (e \to e \to f), d \mapsto e\}$	$\{e \doteq e, e \doteq g, e \doteq h, f \doteq g\}$
$\{c \mapsto (g \to g \to f), d \mapsto g, e \mapsto g\}$	$\{g \doteq h, f \doteq g\}$
$c \mapsto (h \to h \to f), d \mapsto h, e \mapsto h, g \mapsto h\}$	$\{f \doteq h\}$
$\{c \mapsto (h \to h \to h), d \to h, e \mapsto h, g \mapsto h, f \mapsto h\}$	$\emptyset$

$\Rightarrow$ iterate flip const :: $[h \to h \to h]$ //