Problem 1.

$\quad$ maxb $100\,[5, 122, 101, 32, 19]$?

$\mid$ maxb $100\,[5, 122, 101, 32, 19] := $ maxb top $[5, 122, 101, 32, 19]$

$\quad$ ...match[top := 100]

$\mid\ =$ foldr compare FF $[5, 122, 101, 32, 19]$?

$\mid\ \mid$ foldr compare FF $[5, 122, 101, 32, 19]$

$\quad := $ foldr f b $[\,]$

$\quad\quad$ ...match fails

$\quad := $ foldr f b (x:xs)

$\quad\quad$ ...match $[f := $ compare$, b := $ FF$, x := 5, xs := [122, 101, 32, 19]]$

$\mid\ \mid\ =$ f x (foldr f b xs) $[f := $ compare$, b := $ FF$, x := 5, xs := [122, 101, 32, 19]]$?

$\mid\ \mid\ \mid$ compare $5\,($ foldr compare FF $[122, 101, 32, 19])$

$\mid\ \mid\ \mid := $ compare m v

$\quad\quad$ ...match $[m := 5, v := ($foldr compare FF $[122, 101, 32, 19])]$

$\mid\ \mid\ \mid$ m $>=$ top $[m:=5,\ n:=100] = 5 >= 100$

$\quad\quad$ ...false

$\mid\ \mid\ \mid$ otherwise

$\quad\quad$ ...true

$\mid\ \mid\ \mid\ =$ ssmax m v$[m := 5, v := ($foldr compare FF $[122, 101, 32, 19])]$?

$\mid\ \mid\ \mid\ \mid$ ssmax $5\,($foldr compare FF $[122, 101, 32, 19])$

$\mid\ \mid\ \mid\ \mid := $ ssmax m (SS n)

$\quad\quad$ ... forces evaluation

$\mid\ \mid\ \mid\ \mid\ \mid$ foldr compare FF $[122, 101, 32, 19]$?

$\mid\ \mid\ \mid\ \mid\ \mid := $ foldr f b (x:xs)

$\quad\quad$ ... match $[f:=$compare$, b:=$FF$, x=122, xs:=[101, 32, 19]]$

$\mid\ \mid\ \mid\ \mid\ \mid$ compare 122 (foldr compare FF $[101, 32, 19]$)

$\mid\ \mid\ \mid\ \mid\ \mid := $ compare m v

$\quad\quad$ ... match $[m:=122, v:=($foldr compare FF $[101, 32, 19])]$

$\mid\ \mid\ \mid\ \mid\ \mid$ m $>=$ top $[m:=122,\ n:=100] = 122 >= 100$

$\quad\quad$ ...true

$\mid\ \mid\ \mid\ \mid\ \mid\ =$ SS 100

$\mid\ \mid\ \mid\ \mid := $ ssmax m (SS n)

$\quad\quad$ ...match $[m:=5,\ (SS\ n):= (SS\ 100)]$

$\mid\ \mid\ \mid\ \mid\ =$ SS (max m n) $[m:=5,\ n:=100]$

$\mid\ \mid\ \mid\ \mid$ SS (max 5 100)

$\mid\ \mid\ \mid\ \mid$ SS 100

$\mid\ \mid$ SS 100

$\mid$ SS 100