Aufgabe 1.4

a.

(+ (\* 4 (- 15 5)) (/ 12 6))

* (+ (\* 4 10) (/ 12 6))
* (+ 40 (/ 12 6))
* (+ 40 2)
* 42

b.

(\* (string->number "4") (- 33 (string-length "Spoilers")))

* (\* 4 (- 33 (string-length "Spoilers")))
* (\* 4 (- 33 8))
* (\* 4 25)
* 100

c.

(\* (\* 4 5) (string->number "5"))

* (\* 20 (string->number "5"))
* (\* 20 5)
* 100

(\* (+ 3 7) (+ (string->number "5") 5))

* (\* 10 (+ (string->number "5") 5))
* (\* 10 (+ 5 5))
* (\* 10 10)
* 100

Also (\* (\* 4 5) (string->number "5")) ≡ (\* (+ 3 7) (+ (string->number "5") 5))

d.

(+ (string-length "Programmiersprachen") 5)

* (+ 19 5)
* 24

(+ 12 (string-length (replicate 5 "hi")))

* (+ 12 (string-length "hihihihihi")
* (+ 12 10)
* 22

Die Ausdrücke sind also nicht äquivalent.