Quiz 2 (Haskell)

Due Jan 29 at 11:59pm **Points** 100 **Questions** 12
Available Jan 24 at 12am - Jan 29 at 11:59pm **Time Limit** 90 Minutes
Allowed Attempts 2

Attempt History

	Attempt	Time	Score
KEPT	Attempt 2	53 minutes	90 out of 100
LATEST	Attempt 2	53 minutes	90 out of 100
	Attempt 1	25 minutes	76.67 out of 100

Score for this attempt: **90** out of 100
Submitted Jan 28 at 11am
This attempt took 53 minutes.

Question 1 — 5 / 5 pts

True or false? A Haskell list may contain elements of different types.

- ○ True
- ◉ False

Correct!

Question 2 — 5 / 5 pts

True or false? Values (except functions) can be part of a pattern.

- ◉ True

Correct!

- False

Question 3

5 / 5 pts

True or false? Types can be part of a pattern.

- True

Correct!

- False

Question 4

5 / 5 pts

True or false? Each Haskell list ends with the empty list constructor [].

Correct!

- True
- False

Question 5

10 / 10 pts

Consider the following function definition.

```
g _ [] = []
g y (x:xs) | y>0       = g (y-1) xs
           | otherwise = xs
```

What is the result of applying g to a number n and a list of numbers zs?

- The first n elements in the list zs.

Correct!

- The list zs without the first n+1 elements.

- The list zs without the first n elements.
- A list of the elements in the list zs.that are greater than 0

Question 6

10 / 10 pts

Consider the following function definition.

```
h _ [] = 0
h y (x:xs) | y>0       = y + h (y) xs
           | otherwise = 0
```

What is the result of applying h to a number n and a list of numbers zs?

- The value n!
- The sum of the elements in the list zs
- The number of elements in the list zs

Correct!

- The number n times the length of the list zs

Question 7

10 / 10 pts

Complete the following Haskell function definition `range` that produces a consecutive list of numbers that starts with a number given as argument and ends in `1`. For example, `range 3` results in `[3,2,1]`. Give a recursive definition. (You can ignore negative arguments.)

```
range :: Int -> [ Int ]
range 0 = []
range n = _________________
```

- (n-1):range(n)
- range (n:n-1)

Correct!

- (●) n:range (n-1)
- ( ) None of the above
- ( ) (n-1):range(n-1)

Question 8

10 / 10 pts

Complete the following Haskell function definition `downFrom` that produces a consecutive list of numbers that starts with a number given as argument and ends in `1`. For example, `downFrom 3` results in `[3,2,1]`. Give a recursive definition. (You can ignore negative arguments.)

```
downFrom :: Int -> [ Int ]
downFrom 0 = []
downFrom n = _________________
```

- ( ) downFrom(n-1):n
- ( ) (n-1):downFrom(n)
- ( ) (n-1) :downFrom (n-1)

Correct!

- (●) n:downFrom (n-1)

Question 9

10 / 10 pts

Consider the following definition of the function fac

```
fac 1 = 1
fac n = n * fac (n-1)
```

Select the evaluation trace for the expression for fac 3.

Correct!

fac 3 = 3 * fac (3-1)
= 3 * fac 2
= 3 * 2 * fac (2-1)
= 3 * 2 * fac 1
= 3 * 2 * 1
= 6

fac 3 = 1 * 2 * 3
= 6

fac 3 = fac (2) * 3
= fac (1) * 2 * 3
= fac (0) * 1 * 2 * 3
= 6

fac 3 = fac (3) * fac(2) * fac(1)* fac(0)
= 3 * 2 * 1 * 1

= 6

Question 10

10 / 10 pts

Consider the following definition of the function sum

```
sum [] = 0
sum (x:xs) = x + sum xs
```

Select the evaluation trace for the expression sum [5,2].

sum [5,2] = sum[5] + sum [2]
= 7

Correct!

sum [5,2] = 5 + sum [2]
= 5 + 2 + sum []
= 5 + 2 + 0
= 7

sum [5,2] = sum[5] + 2

= sum [] + 5 + 2

= 7

Question 11

0 / 10 pts

Consider the following definition (which **is** type correct).

```
ys = map reverse xs
```

Select ALL of the following statements that are correct?

- [ ] xs can be a list of numbers
- [x] The last element in xs is the first element in ys

ou Answered

- [x] xs must be a list of lists

Correct!

- [ ] ys is a list of numbers

Question 12

10 / 10 pts

Consider the following definition (which **is** type correct).

```
ys = map head xs
```

Select ALL of the following statements that are correct?

- [x] Each element of xs must be a list

Correct!

- [x] ys can be a list of numbers

Correct!

- [ ] ys is a number

Correct!

- [x] ys has the same length as xs

Quiz Score: **90** out of 100