

```
1  --https://stackoverflow.com/questions/18723381/rounding-to-specific-number-of-digits-in-haskell
2  -- helper rounding function
3  truncate' :: Double -> Int -> Double
4  truncate' x n = (fromIntegral (floor (x * t))) / t
5      where t = 10^n
6
7
8  vieta :: Double -> Int -> Double
9  vieta x y
10     | y == 0 = x
11     | otherwise = x * vieta (sqrt (0.5 + (0.5 * x))) (y - 1)
12
13  main = do
14     print (truncate' (1 / (vieta (sqrt (0.5 + (0.5 * sqrt 0.5))) 13 / (2 * sqrt 2))) 8)
```



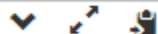
input

[1 of 1] Compiling Main ( main.hs, main.o )

Linking a.out ...

3.14159265

```
10
11 fib :: Int -> Int
12 fib n
13     | n < 2      = n
14     | otherwise = fib (n - 1) + fib (n - 2)
15
16 main :: IO ()
17 main = do
18
19     print [fib n | n <- [0..19]] |
```



```
[1 of 1] Compiling Main                ( main.hs, main.o )
Linking a.out ...
[0,1,1,2,3,5,8,13,21,34,55,89,144,233,377,610,987,1597,2584,4181]
```

```
1
2 asterisk_pat :: Int -> Int -> IO ()
3 asterisk_pat depth space
4   | depth <= 0 = return ()
5   | otherwise = do
6       putStr (replicate_spaces space)
7       putStr (replicate_stars depth)
8       putStrLn ""
9       asterisk_pat (depth - 1) (space + 1)
10
11 replicate_spaces :: Int -> String
12 replicate_spaces n = replicate n ' '
13
14 replicate_stars :: Int -> String
15 replicate_stars n = replicate n '*'
16
17 main :: IO ()
18 main = asterisk_pat 5 0
```

[1 of 1] Compiling Main ( main.hs, main.o )  
Linking a.out ...

```
*****
*****
***
**
*
```

```

17
18 % Question 5 kth digit
19 kth_digit(K, N) ->
20     if
21         K >= 4 ->
22             0;
23         K == 1 ->
24             N rem 10;
25         true ->
26             kth_digit(K-1, N div 10)
27     end.
28

```

PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

```

{ok,final}
9> final:kth_digit(2,32).
3
10> final:kth_digit(2,324).
2
11> final:kth_digit(1,324).
4
12> final:kth_digit(4,324).
0

```

```

18
19 % Quesiton 6 display e
20 find_e(N, X) ->
21     case N of
22         1 -> 1;
23         _ -> pow(X, N-1) / fact(N-1) + find_e(N-1, X);
24     end.
25
26 fact(N) ->
27     case N of
28         0 -> 1;
29         1 -> 1;
30         _ -> N * fact(N - 1);
31     end.

```

PROBLEMS

OUTPUT

DEBUG CONSOLE

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```

PS F:\3 School\ecs 140> erl
Eshell V13.2 (abort with ^G)
1> c(final).
{ok,final}
2> final:find_e(10, 1).
2.7182815255731922
3> final:find_e(10, 3).
20.063392857142855

```