2.3

**Normalization:**

(1). p(x) = a/(1 + x2) x € [0, ∞]

E(1)= = 1, let x=tan(z),

= a = (x € [0, ∞] ) = 1

Thus, **a = 2/π**

(2) p(x) = bcos(x)/(bsin(x) + 1) x € [0, π/2]

, so that is,

x € [0, π/2]

ln(b+1) - ln1 = 1n(b+1) = 1, thus ,

**b = e - 1**

(3) p(x) = cxm-1 /(xm-1)1-1/n x € [1, 21/m]

= c\*n/m(xm-1)1/n , x € [1, 21/m]

Thus, this is equal to c\*n/m - c\*n/m( 0 -1)1/n = 1,

Finally, **c = m/n**

So compile the three distributions:

(1) F(x) = , x € [0, ∞] , y € [0, 1]

(2) F(x) = x € [0, π/2] , y € [0,1]

(3) F(x) = (xm-1)1/n , x € [1, 21/m], y € [0,1]

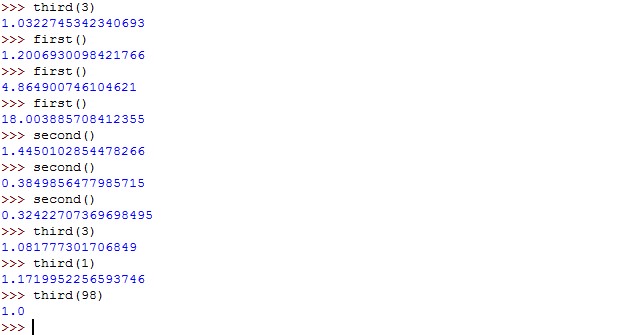
Inverted function of them are :

**(1) F(x) = tan(πx/2) , x € [0,1]**

**(2) F(x) = arcsin((ex-1)/(e-1)) , x € [0,1]**

**(3) F(x) = (xm+1)1/n, x € [0,1]**

By implementing my codes, I got random numbers like:



PLEASE SEE .TXT FOR CODE IMPLEMENTED THESE THREE INVERSION FUNCTION!