LSN 8 LAB 2.

Create following random variables, write the function in the space below:

RV	PDF	CDF	SF	HF	Classify HF
Normal(0,1)					
Normal(60,3)					
Uniform(10,10.01)					
Arctan(3,6.1)					
Erlang(3, 12)					
Gamma(3, 12)					
Exponential(1/11)					
Beta(2, 3)					
Beta(3,2)					
Log Logistic(2,3)					

2. Based on the information above, what is the family name and parameters of a random variable with the following pdfs:

PDF	Family and parameter(s)
$f(x) = 1/12$	
$f(x) = \frac{81}{8} x^4 e^{-3x}$	
$f(x) = 1215 \frac{x^4}{(1+243x^5)^2}$	
$f(x) = 41.2\, e^{-41.2x}$	

3. Find the Mean and Variance of each random variable

RV	Mean	Variance
Normal(0,1)		
Normal(60,3)		
Uniform(10,10.01)		
Arctan(3,6.1)		
Erlang(3, 12)		
Gamma(3, 12)		
Exponential(1/11)		
Beta(2, 3)		
Beta(3,2)		
Log Logistic(2,3)		

4. Find a distribution from the list that you've never heard of before. Plot its PDF, CDF, and HF and report 3 properties of the RV

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5. In the back of Devore's Text is a chart showing the critical values for the T distribution. Recreate that chart. Use degrees of freedom 10, 20, … 50. Find the critical points for probabilities 0.9, 0.95, 0.975, 0.99. Recall that to find x such that $P(X<x)=0.90$, requires that we take the inverse distribution at 0.9, i.e., IDF(T10, 0.9). You may also want to use Maple's do loop syntax:

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for i from 1 to 10 do …  od;
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