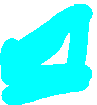
**QUIZ #02 – SOLUTIONS**

Q-1. A given discrete random variable denoted by X has integer values in the range 1 <= X <= 20, all of which are equi-probable. Find the probability that X has any value in the range M <= X <= N.  
  
(N - M + 1)/20 = (N – M + 1)\*0.05  
  
Q-2. A fair coin is tossed 10 times. Find the probability that it turns up HEAD exactly M times.

10CM / 2^10 = 10CM /1024

pdf of continuous RV X



X = 0 X = 20 X axis 🡪



For the next two questions, consider the probability density function shown in the diagram above.

Q-3. Find Prob( X <= M ).

slope = 0.1/20 = 0.005  
height at M = 0.005\*M  
area till M = 0.5\*length\*height = 0.5 \* M \* 0.005 \* M = M^2/400  
  
Q-4. Find Prob( M <= X <= N ).

area till N = 0.5 \* N \* 0.005 \* N  
therefore answer = 0.5\*0.005( N^2 - M^2 ) = ( N^2 - M^2 )/400