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Solve the following problem and compute the probability of the Normal and Exponential distributions.

1. What is the probability of finding men with a height less than 6 feet in a population with a mean height of 5’6” (5.5’), with a standard deviation of 1 foot, the probability is?

The probability of finding men with a height less than 6 feet is approximately 0.691 or 69.1%.

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| **Height** | **Probability Density Function** | **Cumulative Distribution Function** |
| 4 | 0.129517596 | 0.066807201 |
| 4.1 | 0.149727466 | 0.080756659 |
| 4.2 | 0.171368592 | 0.096800485 |
| 4.3 | 0.194186055 | 0.11506967 |
| 4.4 | 0.217852177 | 0.135666061 |
| 4.5 | 0.241970725 | 0.158655254 |
| 4.6 | 0.26608525 | 0.184060125 |
| 4.7 | 0.289691553 | 0.211855399 |
| 4.8 | 0.312253933 | 0.241963652 |
| 4.9 | 0.333224603 | 0.274253118 |
| 5 | 0.352065327 | 0.308537539 |
| 5.1 | 0.36827014 | 0.344578258 |
| 5.2 | 0.381387815 | 0.382088578 |
| 5.3 | 0.391042694 | 0.420740291 |
| 5.4 | 0.396952547 | 0.460172163 |
| 5.5 | 0.39894228 | 0.5 |
| 5.6 | 0.396952547 | 0.539827837 |
| 5.7 | 0.391042694 | 0.579259709 |
| 5.8 | 0.381387815 | 0.617911422 |
| 5.9 | 0.36827014 | 0.655421742 |
| 6 | 0.352065327 | 0.691462461 |
| 6.1 | 0.333224603 | 0.725746882 |
| 6.2 | 0.312253933 | 0.758036348 |
| 6.3 | 0.289691553 | 0.788144601 |
| 6.4 | 0.26608525 | 0.815939875 |
| 6.5 | 0.241970725 | 0.841344746 |
| 6.6 | 0.217852177 | 0.864333939 |
| 6.7 | 0.194186055 | 0.88493033 |
| 6.8 | 0.171368592 | 0.903199515 |
| 6.9 | 0.149727466 | 0.919243341 |
| 7 | 0.129517596 | 0.933192799 |

1. What is the probability that in the next 5 square feet of cloth of finding at least one (1) flaws if the mean flaw per square foot is 3 flaws per square foot?

The probability of finding at least one flaw in the next 5 square feet of cloth is approximately 1 - 0.950 = 0.050 or 5.0%

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| **Number of Flaws** | **Probability Density Function** | **Cumulative Distribution Function** |
| 0 | 0.049787068 | 0.950212932 |
| 1 | 0.199148273 | 0.800851727 |
| 2 | 0.423190081 | 0.576809919 |
| 3 | 0.647231889 | 0.352768111 |
| 4 | 0.815263245 | 0.184736755 |
| 5 | 0.916082058 | 0.083917942 |
| 6 | 0.966491465 | 0.033508535 |
| 7 | 0.988095496 | 0.011904504 |