**Probability Calculations Using Probability Distributions**

Links to the necessary statistical tables can be found at the bottom of the page or in the GitHub repository.

Answers to each question can be found on the second page.

1) **Normal** - An electronics store sells an average of 500 computers each month, with a standard deviation of 40. Their sales are normally distributed.

1. What is the Z value for 450 sales?
2. What is the Z value for 560 sales?
3. What is the probability of selling 450 or less computers in any given month?
4. What is the probability of selling 460 or more computers in any given month?
5. What is the probability of selling between 475 and 575 computers in any given month?

2) **Binomial** - A bank lends money to 5 customers, with the probability of default being 10%.

1. What is the probability of 0 defaults?
2. What is the probability of 3 defaults?
3. What is the probability of 5 defaults?
4. What is the probability of 3 or less defaults?
5. What is the probability of 3 or more defaults?

3) **Poisson** - A call center is called an average of 5 times per hour.

1. What is the probability of getting 0 calls in one hour?
2. What is the probability of getting 5 calls in one hour?
3. What is the probability of getting 8 calls in one hour?
4. What is the probability of getting 3 or fewer calls in one hour?
5. What is the probability of getting more than 3 calls in one hour?

**Normal / Z:** [**https://drive.google.com/file/d/1q8SIwnR\_Y3YTci95OP3PtH7tF9VktRCw/view?usp=sharing**](https://drive.google.com/file/d/1q8SIwnR_Y3YTci95OP3PtH7tF9VktRCw/view?usp=sharing)

**Binomial:** [**https://drive.google.com/file/d/1wFluLjksIIw4mMcr-\_K7hBx4mPm6viX5/view?usp=drive\_link**](https://drive.google.com/file/d/1wFluLjksIIw4mMcr-_K7hBx4mPm6viX5/view?usp=drive_link)

**Poisson:** [**https://drive.google.com/file/d/1JrC8o8sryvLpwBEGKlgXuKb5lxlxv8j2/view?usp=sharing**](https://drive.google.com/file/d/1JrC8o8sryvLpwBEGKlgXuKb5lxlxv8j2/view?usp=sharing)

Answers:

1A) -1.25

1B) 1.5

1C) 0.1056

1D) 0.8413

1E) 0.7056

2A) 0.59049

2B) 0.0081

2C) 0.00001

2D) 0.99954

2E) 0.00856

3A) 0.006737

3B) 0.175467

3C) 0.065278

3D) 0.265026

3E) 0.734974