IFT 6085 First-class quiz Full name: _____

Answer each of the following questions as shortly as possible. The quizzes will not be scored and they will not count towards your class grade.

1. Name two kinds of continuous distributions.

2. What are the eigenvalues, and corresponding eigenvectors of $\begin{vmatrix} 1 & -1 \\ -1 & 1 \end{vmatrix}$

3. Write down a sufficient condition for function $f(x)$ to be convex.

4. How many numbers do you need to represent a general $m \times n$ matrix? How many numbers do you need to represent a rank-k, $m \times n$ matrix?

5. Draw a convex function.

6. Write down any mathematical condition that implies that function $f(x)$ is convex.

7. What is the formula for calculating the variance of a random variable X?

8. Write down Markov's inequality.