

Part 1: Difference between Discrete and Continuous Distributions

Distributions fall into two categories, discrete and continuous. Discrete distributions are where we can put items into groups, e.g.: there is 1 white ball, 2 white balls, 3 white balls, etc. Continuous distributions are when numbers can fall anywhere along a scale, e.g.: the boy could be 153.45cm tall or 185.23cm tall or anywhere in between.

Of the distributions that we look at for 3.14 the **Normal**, **Uniform** and **Triangular** distributions are all continuous and the **Binomial** and **Poisson** are discrete distributions. We also occasionally deal with **Discrete Random Variables** which are also obviously discrete.

Exercise 1.1

For each of the situations below state if a discrete or continuous distribution would be best to model what is going on.

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| 1. The number of white balls selected from a bag | 8. The weight of apples |
| 2. The weight of students | 9. The number of people ahead of you in a queue when you arrive at the bank |
| 3. The heights of kiwi birds | 10. The number of students in a class |
| 4. How far students can jump | 11. The length of bridges around New Zealand |
| 5. How tall buildings in a city are | 12. The number of traffic lights in a city |
| 6. The number of heads when flipping a coin 5 times in a row | 13. The number of phone calls received per hour in a call centre |
| 7. The circumference of oranges | |