Equitable Equations: *Inverse normal calculations*

Problem 1

Find the z-score that has 44% of the distribution to its left.

Problem 2

Find the value in $N(12, 3^2)$ that has 87% of the distribution to its right.

Problem 3

The following problem is taken from *OpenIntro Statistics*, Fourth Edition, by David Diez, Mine Çetinkaya-Rundel, and Christopher Barr. Pay what you want or download for free at `https://www.openintro.org/book/os/`.

> **4.7 LA weather, Part I.** The average daily high temperature in June in LA is 77°F with a standard deviation of 5°F. Suppose that the temperatures in June closely follow a normal distribution.
>
> (a) What is the probability of observing an 83°F temperature or higher in LA during a randomly chosen day in June?
>
> (b) How cool are the coldest 10% of the days (days with lowest average high temperature) during June in LA?

Problem 4

Small bags of chips have weights that are normally distributed with mean $\mu = 1.55$ oz and standard deviation $\sigma = .06$ oz.

(a) What is the probability that a randomly-selected bag of chips weighs less than 1.50 oz?

(b) What is the 98^{th} percentile of weights?