

Solution

Step 1: See Figure 6-12, which incorporates this information: Women have heights that are normally distributed with a mean of 63.8 in. and a standard deviation of 2.6 in. The shaded region represents the women who satisfy the height requirement by being at least 70 in. tall.

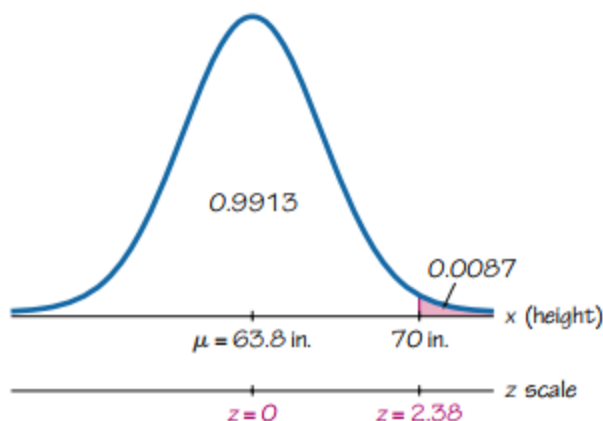


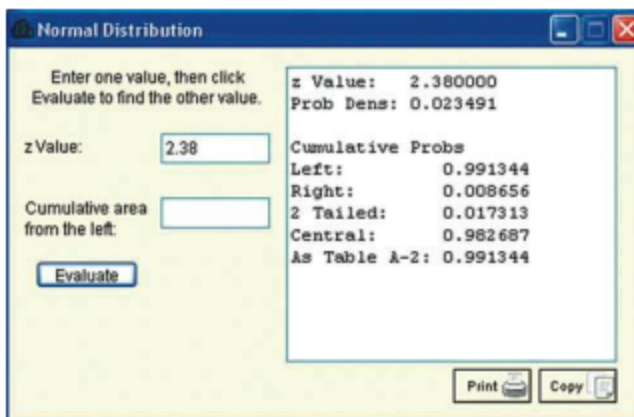
Figure 6-12 Heights of Women

Step 2: We can convert the height of 70 in. to a z score by using Formula 6-2 as follows:

$$z = \frac{x - \mu}{\sigma} = \frac{70 - 63.8}{2.6} = 2.38$$

Step 3: To use technology, refer to the instructions at the end of this section. Shown here is the STATDISK display that results from an entry of $z = 2.38$; it shows that the area to the right of $z = 2.38$ is 0.008656 (or 0.0087 rounded) and that is the shaded area in Figure 6-12.

STATDISK



To use Table A-2, refer to that table with $z = 2.38$ and find that the cumulative area to the *left* of $z = 2.38$ is 0.9913. (Remember, Table A-2 is designed so that all areas are cumulative areas from the *left*.) Because the total area under the curve is 1, it follows that the shaded area in Figure 6-12 is $1 - 0.9913 = 0.0087$.