

THE NORMAL DISTRIBUTION: PRACTICE; THE NORMAL DISTRIBUTION

STUDENT LEARNING OUTCOMES:

- THE STUDENT WILL EXPLORE THE PROPERTIES OF DATA WITH A NORMAL DISTRIBUTION.

GIVEN:

The life of Sunshine CD players is normally distributed with a mean of 4.1 years and a standard deviation of 1.3 years. A CD player is guaranteed for 3 years. We are interested in the length of time a CD player lasts.

NORMAL DISTRIBUTION

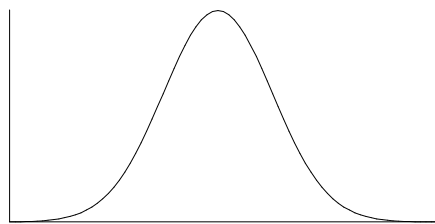
1. Define the Random Variable X in words.

X =

2. $X \sim$ _____

3. Find the probability that a CD player will break down during the guarantee period.

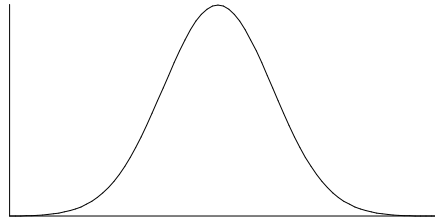
- a. Sketch the situation. Label and scale the axes. Shade the region corresponding to the probability.



- b. $P(0 < X < \text{_____}) = \text{_____}$

4. Find the probability that a CD player will last between 2.8 and 6 years.

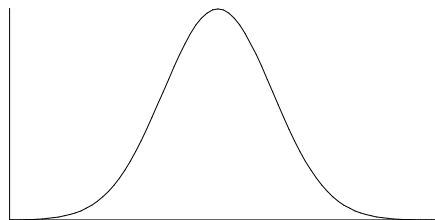
a. Sketch the situation. Label and scale the axes. Shade the region corresponding to the probability.



b. $P(\text{_____} < X < \text{_____}) = \text{_____}$

5. Find the 70th percentile of the distribution for the time a CD player lasts.

a. Sketch the situation. Label and scale the axes. Shade the region corresponding to the lower 70%.



b. $P(X < k) = \text{_____}$. Therefore, $k = \text{_____}$.