

NORMAL DISTRIBUTION: PRACTICE*

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1 Student Learning Outcomes

- The student will explore the properties of data with a normal distribution.

2 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.

3 Normal Distribution

Exercise 1

Define the Random Variable X in words. $X =$

Exercise 2

$X \sim$

Exercise 3

(Solution on p. 4.)

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.

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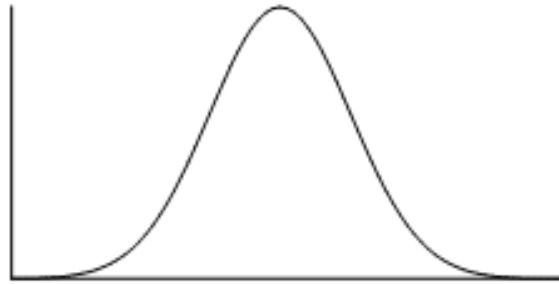


Figure 1

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

Exercise 4

(Solution on p. 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.



Figure 2

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

Exercise 5

(Solution on p. 4.)

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%.





Figure 3

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

Solutions to Exercises in this Module

Solution to Exercise 3 (p. 1)

b. 3, 0.1979

Solution to Exercise 4 (p. 2)

b. 2.8, 6, 0.7694

Solution to Exercise 5 (p. 2)

b. 0.70, 4.78years

