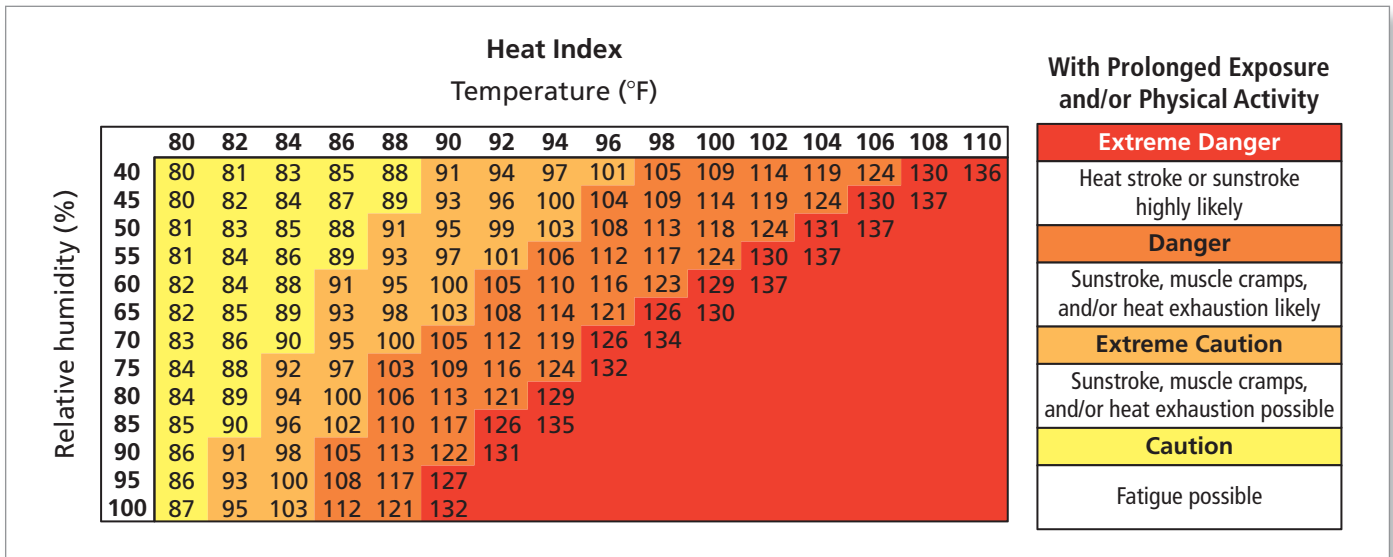


▶ Extending Concepts

Heat Index In Exercises 21–26, use the heat index chart and the information below.

The heat index is the temperature the body feels when heat and humidity are combined. The chart shows the heat index that corresponds to the actual air temperature and relative humidity. This chart is based upon shady, light wind conditions. Exposure to direct sunlight can increase the heat index by up to 15°F. The National Weather Service will issue an excessive heat warning when the heat index is expected to exceed 105°F in the next 36 hours. From 2000 to 2009, heat killed more people in the United States than any other weather-related incident.



- On average, lightning kills 48 people per year. Heat kills 237.5% more people each year than lightning. What is the annual fatality rate of heat?
- On average, tornadoes kill 100 fewer people per year than heat. What is the annual fatality rate of tornadoes?
- Suppose tomorrow’s high temperature is predicted to be 92°F with a relative humidity of 80%. Should the National Weather Service issue an excessive heat warning? Explain your reasoning.
- Suppose you are climbing the west side of a mountain on a sunny afternoon. The temperature is 88°F with a relative humidity of 60%. Should you be concerned about the heat index? Explain your reasoning.
- Holding the relative humidity constant, does the heat index have a linear relationship with the temperature? Explain your reasoning.
- How might the heat index affect the planning of a hiking trip?

