**Meteorology** The table shows the normal daily high temperatures $P$ for Phoenix, Arizona and $Y$ for Yakima, Washington (in degrees Fahrenheit) for each month. In the table, $t$ represents the month, with $t = 1$ corresponding to January. (Data Source: NOAA)

| Month, $t$ | Temperature, $P$ | Temperature, $Y$ |
|:---:|:---:|:---:|
| 1 | 67.2 | 23.3 |
| 2 | 70.7 | 25.9 |
| 3 | 76.9 | 30.1 |
| 4 | 85.2 | 34.4 |
| 5 | 94.8 | 41.9 |
| 6 | 103.9 | 48.3 |
| 7 | 106.1 | 53.3 |
| 8 | 104.4 | 51.8 |
| 9 | 99.8 | 43.5 |
| 10 | 88.5 | 34.1 |
| 11 | 75.5 | 26.8 |
| 12 | 66.0 | 21.3 |

(a) Use the *sine regression* feature of a graphing utility to find sine models to fit each set of data.

(b) Use a graphing utility to graph each model from part (a) with the original data. How well does each model fit the original data?

(c) A normal daily high temperature of 50°F is reported. Determine the month(s) in which this high temperature is most likely reported in each city, if possible. Explain your results.

(d) A normal daily high temperature of 60°F is reported. Determine the month(s) in which this high temperature is most likely reported in each city, if possible. Explain your results.

(e) A normal daily high temperature of 76°F is reported. Determine the month(s) in which this high temperature is most likely reported in each city, if possible. Explain your results.

(f) A normal daily high temperature of 103°F is reported. Determine the month(s) in which this high temperature is most likely reported in each city, if possible. Explain your results.