## Determining Sinusoidal Equations from a Graph or Table

Example 1 Determine the equation of the following graph as a sine function and as a cosine function.


Example 2 A sinusoidal function has an amplitude of 2 units, a period of $180^{\circ}$ and a maximum at $(0,3)$. Represent the function with an equation in 2 different ways.

Example 3 Determine the function that models the data in the table that does not involve a horizontal translation.

| $\mathbf{x}$ | $0^{\circ}$ | $45^{\circ}$ | $90^{\circ}$ | $135^{\circ}$ | $180^{\circ}$ | $225^{\circ}$ | $270^{\circ}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathbf{y}$ | 9 | 7 | 5 | 7 | 9 | 7 | 5 |

