

# Practice Problems: Modeling Data Lesson 9

Juneau

$$\textcircled{1} |A| = \frac{56.0 - 24.2}{2} = 15.9 \quad k = \frac{56.0 + 24.2}{2} = 40.1$$

$$NP = 12 \text{ months} \quad B = \frac{2\pi}{12} = \frac{\pi}{6} \quad PS \approx 4.11 \text{ for sine}$$

$$y = 15.9 \sin \left[ \frac{\pi}{6} (t - 4.11) \right] + 40.1$$

$$y = 15.9 \sin \left[ \frac{\pi}{6} t - 2.152 \right] + 40.1$$

Denver

$$\textcircled{2} |A| = \frac{73.5 - 29.7}{2} = 21.1 \quad k = \frac{73.5 + 29.7}{2} = 51.6$$

$$NP = 12 \text{ months} \quad B = \frac{2\pi}{12} = \frac{\pi}{6} \quad PS \approx 4.5$$

$$y = 21.1 \sin \left[ \frac{\pi}{6} (t - 4.5) \right] + 51.6$$

$$y = 21.1 \sin \left[ \frac{\pi}{6} t - 2.3562 \right] + 51.6$$

Detroit

$$\textcircled{3} |A| = \frac{72.3 - 22.9}{2} = 24.7 \quad k = \frac{72.3 + 24.7}{2} = 47.6$$

$$NP = 12 \text{ months} \quad B = \frac{2\pi}{12} = \frac{\pi}{6} \quad PS \approx 3.5$$

$$y = 24.7 \sin \left[ \frac{\pi}{6} (t - 3.5) \right] + 47.6$$

$$y = 24.7 \sin \left[ \frac{\pi}{6} t - 1.8326 \right] + 47.6$$