

Day 5 HW: Practice Exercises

Selected Solutions

- 1a. 39
1b. 3
1c. No solutions
2. $5^\circ, 40^\circ, 95^\circ, 130^\circ, 185^\circ, 220^\circ, 275^\circ,$ or 310°
- 3a. $15^\circ, 165^\circ, 195^\circ,$ or 345°
3b. No solutions
3c. 180°
3d. $50^\circ, 70^\circ, 170^\circ, 190^\circ, 290^\circ,$ or 310°
3e. $27^\circ, 63^\circ, 99^\circ, 135^\circ, 171^\circ, 207^\circ, 243^\circ, 279^\circ, 315^\circ,$ or 351°
3f. $60^\circ, 120^\circ, 240^\circ,$ or 300°

4a. $\frac{\pi}{12}, \frac{5\pi}{12}, \frac{13\pi}{12},$ or $\frac{17\pi}{12}$

4b. $\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4},$ or $\frac{7\pi}{4}$

5. The owl population fell below 35,000 between the years 2007 and 2011. Here's how:

$$30 \cos[30(t-3)] + 50 = 30$$

$$\cos[30(t-3)] = -\frac{1}{2}$$

$$30(t-3) = 120 \quad \text{or} \quad 30(t-3) = 240$$

$$t = 7 \quad \text{or} \quad t = 11$$

Then, use the graph to see that the owl population is below 35(thousand) between 7 and 11.

