f. The point estimated for the true proportion of flightless birds for the extinct species is $\hat{p} = \frac{Y}{n} = \frac{21}{38} = 0.5526$.

The point estimated for the true proportion of flightless birds for the nonextinct species is $\hat{p} = \frac{Y}{n} = \frac{7}{78} = 0.0897$.

For confidence coefficient 0.95, $\alpha = 0.05$ and $\alpha/2 = 0.05/2 = 0.025$. From Table 5, Appendix B, $z_{0.025} = 1.96$.

To see if the sample size is sufficiently large:

$$n_1\hat{p}_1 = 38(0.5526) = 21.0 \geq 4;\ n_1\hat{q}_1 = 38(0.4474) = 17.0 \geq 4$$
$$n_2\hat{p}_2 = 78(0.0897) = 7.0 \geq 4;\ n_2\hat{q}_2 = 78(0.9103) = 71.0 \geq 4$$

Since $n_1\hat{p}_1 \geq 4$, $n_1\hat{q}_1 \geq 4$, $n_2\hat{p}_2 \geq 4$, and $n_2\hat{q}_2 \geq 4$, we may conclude that the normal approximation is reasonable.

$$(\hat{p}_1 - \hat{p}_2) \pm z_{\alpha/2}\sqrt{\frac{\hat{p}_1\hat{q}_1}{n_1} + \frac{\hat{p}_2\hat{q}_2}{n_2}} \Rightarrow (0.5526 - 0.0897) \pm 1.96\sqrt{\frac{0.5526(0.4474)}{38} + \frac{0.0897(0.9103)}{78}}$$
$$\Rightarrow 0.4629 \pm 0.1703 \Rightarrow (0.2926,\ 0.6332)$$

g. Since the entire interval is contained above the value 0, we are 95% confident that the proportion of flightless birds is greater for the extinct species than for the nonextinct species. The confidence interval supports the theory.