1.

$$\mathcal{N}(\mu, \frac{Sx}{\sqrt{n}})$$

$$SE = \frac{Sx}{\sqrt{n}}$$

$$CI = \bar{x} \pm z \cdot \frac{Sx}{\sqrt{n}}$$

$$z = \frac{\bar{x} - \mu}{SE}$$

The difference between
the two population means:

$$\mu_1 - \mu_2$$

$$H_0: \ \mu_1 - \mu_2 = 0$$

$$H_A: \ \mu_1 - \mu_2 \neq 0$$

$$SE = \frac{S_d}{\sqrt{n}}$$

$$\bar{d} \pm t^*_{df} \cdot SE$$

$$\frac{\bar{d} - \mu}{SE}$$

The difference between
the two population means:

$$\mu_1 - \mu_2$$

$$t_{df=min(n_1-1,n_2-1)}$$

$$SE = \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}$$

$$CI = (\bar{x_1} - \bar{x_2}) \pm t^*_{df} \cdot SE$$

2.

c.

`qt(0.90, df = 10)=1.372`

$$\begin{aligned} CI &= 6.29 \pm 1.372 \cdot \frac{5.589}{\sqrt{11}} \\ &= [3.978, 8.602] \end{aligned}$$

The unit is in dollars. The experiment is 80 percent confident that the true difference in mean price lies within the interval [3.978, 8.602].

3.

H_0: $\mu_{dome} - \mu_{ndome} = 0$
H_A: $\mu_{dome} - \mu_{ndome} \neq 0$