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`

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

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: $\mu_{dome} - \mu_{ndome} \neq 0$
$SE = \sqrt{\frac{15.74^2}{5} + \frac{6.56^2}{7}} = 7.46$
$T = \frac{(83.96-84.84)-0}{7.46} = -0.1179$
`2*pt(-0.1179, df=4) = 0.912`
Since $0.912 > 0.03$ we fail to reject H_0, we decide that there is no difference between the two strategies.

5.

H_0: $\mu_o - \mu_s = 0$
H_A: $\mu_o - \mu_s \neq 0$
$SE = \frac{7.3}{\sqrt{37}} = 1.20$
$T = \frac{3.5-0}{1.20} = 2.917$
`2*pt(-2.917, df=36)=0.006`
Since 0.006 ¡ 0.05, we reject the H_0 in favor of H_A. There appears to be a difference in critical review of original movies and their sequals.