1. Options (b) and (c)

2. (a) Since 10.5 is inside the 95% CI, the corresponding P-value for an hypothesis test is greater than 0.05. As a result, 10.5 is plausible enough you would not reject H_0 at the 5% level.

(b) Option (i)

4. (a) We denote p to be the proportion of would-be voters who support Candidate A.

$$H_0: p = 0.5 \quad \text{vs.} \quad H_a: p > 0.5$$

(b) The sample proportion $\hat{p} = \frac{121}{225} \doteq 0.5378$ serves as a test statistic, but it is not standardized. Since $\hat{p} \sim \text{Norm}(0.5, 0.0333)$ when H_0 is true, we have

$$Z = \frac{0.5378 - 0.5}{0.0333} \doteq 1.134$$

(c) Possible answers:

1 - pnorm(1.134)

1 - pnorm(1.134, 0, 1)

1 - pnorm(0.5378, 0.5, 0.0333)

pnorm(-1.134)

Since H_a is one-sided, these results should not be doubled.

5. (a) The two sample sizes fail to make the threshold of 30. That is concerning, but we don't know how skewed the populations from which samples were drawn are. I would choose "unclear" among the 3 options.

(b) qnorm(0.98, df = 18)

(c) Letting μ_B, μ_F denote the mean for breast-fed and formula infants, respectively, we have

$$(\bar{x}_B - \bar{x}_F) \pm t^* \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}} = (13.3 - 12.4) \pm (2.214) \sqrt{\frac{1.7^2}{23} + \frac{1.8^2}{19}}$$

or $(-0.3049, 2.1049)$