Sample Size Questions

In light of their findings, the researchers wish to design a new study to study the effects of weight loss on sleep quality among obese persons. Participants will be **randomized in equal numbers to a weight loss intervention or a control group**. **Change in nightly minutes slept** over the duration of the study will be the **study outcome**. The researchers will use **60 minutes** as their **estimate of the standard deviation of change in sleep time** in both intervention and control groups.

19. How large must the **intervention group** be if the researchers seek to provide a 95% confidence interval for the mean change in sleep time in that group that is no more than 30 minutes wide? (*Circle only one response.*)

    a) n=4 in the intervention group
    b) n=16 in the intervention group
    c) n=42 in the intervention group
    d) n=62 in the intervention group
    e) n=168 in the intervention group

20. The researchers will test for a **difference in mean change in sleep time** between intervention and control groups, setting the probability of Type I error equal to 0.05. They seek to achieve power=0.90 for their test. What, if any, additional information do they need to calculate the needed sample size, beyond that already given (i.e. in the text preceding question 19, in question 19, and in the preceding two sentences)? (*Circle only one response.*)

a) α
b) β
c) Δ
d) The mean change in sleep time hypothesized in the control group.
e) No additional information is needed: It all has been provided above.