Problem: An experimenter publishing in the *Annals of Botany* investigated whether the stem diameter of the dicot sunflower would change depending on whether the plant was left to sway freely in the wind or was artificially supported. Suppose that the unsupported stem diameters at the base of a particular species of sunflower plant have a normal distribution with an average diameter of 35 mm and a standard deviation of 3 mm.

1. What is the probability that a sunflower plant will have a basal diameter of more than 40 mm?

2. If two sunflower plants are randomly selected, what is the probability that both plants will have a basal diameter of more than 40 mm?

3. Within what limits would you expect the basal diameters to line, with probability .95?

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