FIGURE 28.20. A branching process leads to a broadly spread distribution. In each generation, there is a 30% chance that an individual dies and a 70% chance that it divides, leaving two offspring. The expected number of offspring is 1.4, and so after ten generations, an individual is expected to leave $1.4^{10}$ = 30 descendants. However, the distribution becomes increasingly widely spread. Either there are no descendants (probability $0.3/0.7 = 43\%$) or there are likely to be a large number. (A) The distribution of numbers of descendants over time. The areas of the circles are proportional to probability. (The diagram is cut off at the right, at 60 descendants.) (B) The distribution of the number of descendants after ten generations.

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