Using the Binomial Probability Table. ***In Exercises 15–20, assume that random guesses are made for five multiple-choice questions on an ACT test, so that there are $n = 5$ trials, each with probability of success (correct) given by $p = 0.20$. Use the Binomial Probability table(Table A-1) to find the indicated probability for the number of correct answers.***

15. Find the probability that the number x of correct answers is exactly 3.

16. Find the probability that the number x of correct answers is at least 3.

17. Find the probability that the number x of correct answers is more than 2.

18. Find the probability that the number x of correct answers is fewer than 3.

19. Find the probability of no correct answers.

20. Find the probability that all answers are correct.

Using Technology or the Binomial Probability Formula. ***In Exercises 21–24, assume that when blood donors are randomly selected, 45% of them have blood that is Group O (based on data from the Greater New York Blood Program).***

21. If the number of blood donors is $n = 8$, find the probability that the number with Group O blood is $x = 3$.

22. If the number of blood donors is $n = 16$, find the probability that the number with Group O blood is $x = 6$.

23. If the number of blood donors is $n = 20$, find the probability that the number with Group O blood is $x = 16$.

24. If the number of blood donors is $n = 11$, find the probability that the number with Group O blood is $x = 9$.

Using Computer Results. ***In Exercises 25–28, refer to the accompanying Excel display. (In one of Mendel's hybridization experiments with peas, the probability of offspring peas having green pods is ¾, or 0.75.) The display lists the probabilities obtained by entering the values of $n = 6$ and $p = 0.75$. Those probabilities correspond to the numbers of peas with green pods in a group of six offspring peas.***

EXCEL

Peas with Green Pods x	P(x)
0	0.000
1	0.004
2	0.033
3	0.132
4	0.297
5	0.356
6	0.178

25. Genetics Find the probability that at least two of the six offspring peas have green pods. If at least two offspring peas with green pods are required for further experimentation, is it reasonable to expect that at least two will be obtained?

26. Genetics Find the probability that at most five of the six offspring peas have green pods.

27. Genetics Find the probability that at most two of the six offspring peas have green pods. Is two an unusually low number of peas with green pods (among six)? Why or why not?

28. Genetics Find the probability that five or more of the six offspring peas will have green pods. Is five an unusually high number of offspring peas with green pods? Why or why not?

In Exercises 29–32, use either technology or the Binomial Probability table (Table A-1).

29. See You Later Based on a Harris Interactive poll, 20% of adults believe in reincarnation. Assume that six adults are randomly selected, and find the indicated probability.

a. What is the probability that exactly five of the selected adults believe in reincarnation?

b. What is the probability that all of the selected adults believe in reincarnation?

c. What is the probability that at least five of the selected adults believe in reincarnation?

d. If six adults are randomly selected, is five an unusually high number who believe in reincarnation?