Lesson 6.2.1

6-29. a. The number of possible ways to get 0, 1, 2, 3, and 4 correct, respectively, are 1, 4, 6, 4, 1. This may be recognized as a row from Pascal's triangle or as binomial coefficients.

b. $P(\text{Y}) = 0.2$ and $P(\text{N}) = 0.8$

c. A good check is making sure that the probabilities add up to 1. See the next problem!

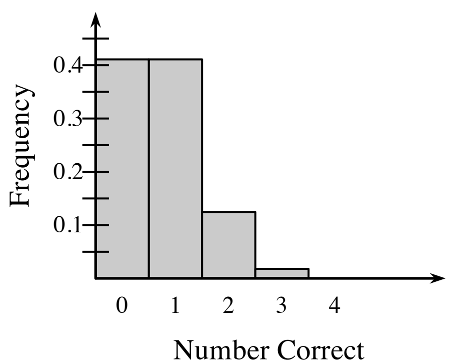
6-30. The probabilities all add to 1. This must be the case because all possible outcomes are represented. The table represents the entire sample space S, and $P(S) = 1$.

6-31.

Number of Ys	0	1	2	3	4
Probability	0.4096	0.4096	0.1536	0.0256	0.0016

6-32. expected value = 0.8 Ys, standard deviation = 0.8 Ys

6-33.



6-34. a. $\binom{4}{2} = 6$

b. $6 \cdot 0.8 \cdot 0.8 \cdot 0.2 \cdot 0.2 = 0.1536$. This matches the previous calculation.

6-35. a. $(0.2)^4 \cdot (0.8)^6 = 0.0004194304$

b. $\binom{10}{4} = 210$

c. $P(X = 4) = 210(0.2)^4(0.8)^6 = 0.0881$

6-36. $P(X = k) = \binom{n}{k}(p)^k(1-p)^{n-k}$

6-37. Using the 1.5 IQR rule, there are no outliers at the lower prices. The upper cutoff is \$51.61, making \$52.70 an outlier.

6-38. $P(X = 5) = \binom{40}{5}(0.07)^5(0.93)^{35} = 0.0872$

6-39. One sample response might be: Obtain a list of the 10 most recent lots. Find out where these lots were distributed. Purchase cookies from each lot. Number off the purchased cookies, and randomly choose 20 cookies from each lot. This is similar to a stratified random sample.

6-40. a. $\mu_X = 5.5$, $\sigma_X = \sqrt{8.25} \approx 2.8723$

b. $\mu_{X+X} = 11$, $\sigma_{X+X} = \sqrt{16.5} \approx 4.0620$

6-41. a. $P(X > 240) = 0.0548$

b. 258 test score

c. Normal distribution, $\mu = 0$, $\sigma = \sqrt{1250}$. $1 - P(-50 < X < 50) = 0.1573$

