All problems below are from Ross, Chapter 4. These problems are the same in the 8th edition of the book.

**Problem (25).**
(a) \( p(1) = P(X = 1) = (.6)(.3) + (.4)(.7) = .46 \)
(b) \( E[X] = p(1) + 2p(2) = .46 + 2 \times (.6)(.7) \)

**Problem (27).** Let \( X \) be the amount \( Y \) charged by the company for the policy less \( A \) if \( E \) occurs.
\[
.1A = E[X] = p(Y - A) + (1 - p)Y \Rightarrow Y = (p + .1)A
\]

**Problem (28).** Let \( X \) be the number of defective items in the sample. Then
\[
E[X] = \frac{4 \binom{16}{2} + 2 \binom{4}{1} \binom{16}{1} + 3 \binom{4}{3}}{\binom{20}{3}}
\]

**Problem (32).** Let \( X \) be the number of tests necessary and let \( p(i) = P(X = i) \)

\[
p(1) = (.9)^{10}
\]
\[
p(11) = 1 - (.9)^{10}
\]
\[
E[X] = p(1) + 11p(11) = 11 - 10(.9)^{10}
\]

**References**