8.3 Exercises

Life Insurance **The table shows the probabilities of dying during the year for various ages. In Exercises 1–6, use the table.** *(See Examples 1 and 2.)*

Probability of Dying During the Year		
Age	Male	Female
21	0.001420	0.000472
22	0.001488	0.000487
23	0.001502	0.000496
24	0.001474	0.000503
25	0.001430	0.000509
26	0.001393	0.000519
27	0.001366	0.000535
28	0.001362	0.000561
29	0.001379	0.000595
30	0.001406	0.000637

1. A 23-year-old male pays $275 for a 1-year $150,000 life insurance policy. What is the expected value of the policy for the policyholder?

2. A 28-year-old female pays $163 for a 1-year $200,000 life insurance policy. What is the expected value of the policy for the policyholder?

3. A 27-year-old male pays $310 for a 1-year $175,000 life insurance policy. What is the expected value of the policy for the insurance company?

4. A 25-year-old female pays $128 for a 1-year $120,000 life insurance policy. What is the expected value of the policy for the insurance company?

5. A 26-year-old male pays $351 for a 1-year $180,000 life insurance policy.
   a. What is the expected value of the policy for the policyholder?
   b. What is the expected value of the policy for the insurance company?
   c. Suppose the insurance company sells 10,000 of these policies. What is the expected value of the policies for the insurance company?

6. A 30-year-old female pays $259 for a 1-year $250,000 life insurance policy.
   a. What is the expected value of the policy for the policyholder?
   b. What is the expected value of the policy for the insurance company?
   c. Suppose the insurance company sells 10,000 of these policies. What is the expected value of the policies for the insurance company?