## Problems

23.

Using [Exercise 16.20](http://openstax.org/books/principles-microeconomics-3e/pages/16-critical-thinking-questions#fs-idp5273632), sketch the effects in parts (a) and (b) on a single supply and demand diagram. What prediction would you make about how the improved information alters the equilibrium quantity and price?

24.

Imagine that you can divide 50-year-old men into two groups: those who have a family history of cancer and those who do not. For the purposes of this example, say that 20% of a group of 1,000 men have a family history of cancer, and these men have one chance in 50 of dying in the next year, while the other 80% of men have one chance in 200 of dying in the next year. The insurance company is selling a policy that will pay $100,000 to the estate of anyone who dies in the next year.

1. If the insurance company were selling life insurance separately to each group, what would be the actuarially fair premium for each group?
2. If an insurance company were offering life insurance to the entire group, but could not find out about family cancer histories, what would be the actuarially fair premium for the group as a whole?
3. What will happen to the insurance company if it tries to charge the actuarially fair premium to the group as a whole rather than to each group separately?