## Self-Check Questions

[1](http://openstax.org/books/principles-microeconomics-3e/pages/chapter-13#ch13mod01_sques01-solution).

Do market demand curves reflect positive externalities? Why or why not?

[2](http://openstax.org/books/principles-microeconomics-3e/pages/chapter-13#ch13mod01_sques02-solution).

Suppose that Sony's R&D investment in digital devices has increased profits by 20%. Is this a private or social benefit?

[3](http://openstax.org/books/principles-microeconomics-3e/pages/chapter-13#ch13mod01_sques03-solution).

The Gizmo Company is planning to develop new household gadgets. [Table 13.4](#ch13mod01_tab03) shows the company’s demand for financial capital for research and development of these gadgets, based on expected rates of return from sales. Now, say that every investment would have an additional 5% social benefit—that is, an investment that pays at least a 6% return to the Gizmo Company will pay at least an 11% return for society as a whole; an investment that pays at least 7% for the Gizmo Company will pay at least 12% for society as a whole, and so on. Answer the questions that follow based on this information.

|  |  |
| --- | --- |
| Estimated Rate of Return | Private profits of the firm from an R&D project (in $ millions) |
| 10% | $100 |
| 9% | $102 |
| 8% | $108 |
| 7% | $118 |
| 6% | $133 |
| 5% | $153 |
| 4% | $183 |
| 3% | $223 |

Table 13.4

1. If the going interest rate is 9%, how much will Gizmo invest in R&D if it receives only the private benefits of this investment?
2. Assume that the interest rate is still 9%. How much will the firm invest if it also receives the social benefits of its investment? (Add an additional 5% return on all levels of investment.)

[4](http://openstax.org/books/principles-microeconomics-3e/pages/chapter-13#ch13mod01_sques04-solution).

The Junkbuyers Company travels from home to home, looking for opportunities to buy items that would otherwise end up with the garbage, but which the company can resell or recycle. Which will be larger, the private or the social benefits?

[5](http://openstax.org/books/principles-microeconomics-3e/pages/chapter-13#ch13mod02_sques01-solution).

When residents in a neighborhood tidy it and keep it neat, there are a number of positive spillovers: higher property values, less crime, happier residents. What types of government policies can encourage neighborhoods to clean up?

[6](http://openstax.org/books/principles-microeconomics-3e/pages/chapter-13#ch13mod02_sques02-solution).

Education provides both private benefits to those who receive it and broader social benefits for the economy as a whole. Think about the types of policies a government can follow to address the issue of positive spillovers in technology and then suggest a parallel set of policies that governments could follow for addressing positive externalities in education.

[7](http://openstax.org/books/principles-microeconomics-3e/pages/chapter-13#ch13mod03_sques01-solution).

Which of the following goods or services are nonexcludable?

1. police protection
2. streaming music from satellite transmission programs
3. roads
4. primary education
5. cell phone service

[8](http://openstax.org/books/principles-microeconomics-3e/pages/chapter-13#ch13mod03_sques02-solution).

Are the following goods non-rival in consumption?

1. slice of pizza
2. laptop computer
3. public radio
4. ice cream cone