

7/8 Appendix: Equations and graphs

Questions (with answers)

Preliminary remarks:

- All questions refer to taxi companies that calculate the price of a ride as follows:
 - Fixed basic fee (e.g. in \$ or €)
 - Variable distance fare, but fixed per mile (e.g. in \$ or €)
- Similar examples (with telephone bill plans) in Frank R.H./Bernanke B.S.: Principles of Economics, McGraw-Hill, 2001, ISBN 0-07-228962-7, p. 21 ff.

1 From the text to the equation

The price of a taxi ride is composed of a basic fee of 8 and a distance fare rate of 1.60 per mile.

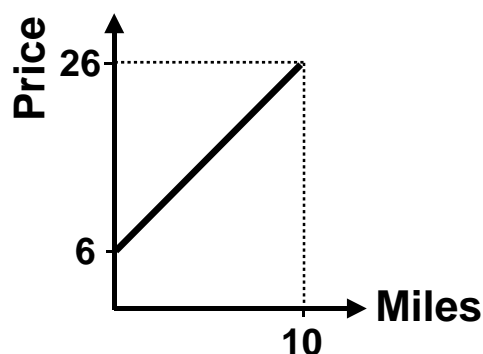
- What is the equation for calculating the price of a taxi ride?
[X = Ride in miles, Y = Price of the taxi ride]
- Determine the variables and constants of the equation.

2 From the equation to the graph

- Show in a graph the price of a taxi ride as a function of the distance taking into consideration the following equation: $Y = 7 + 1.4X$
[X-axis: Miles travelled / Y-axis: Price of a ride]
- Calculate the slope.

3 From the graph to the equation

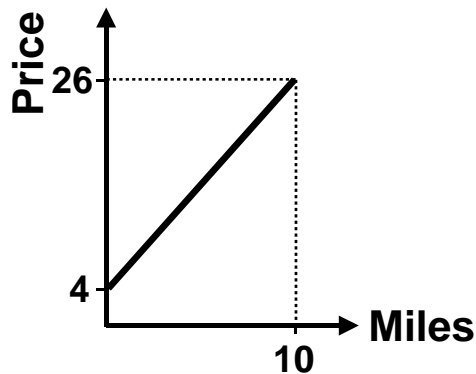
Price of a taxi ride in dependence of the miles travelled:



- a What is the equation for calculating the price of a ride?
- b Calculate the slope.

4 Shift of a straight line

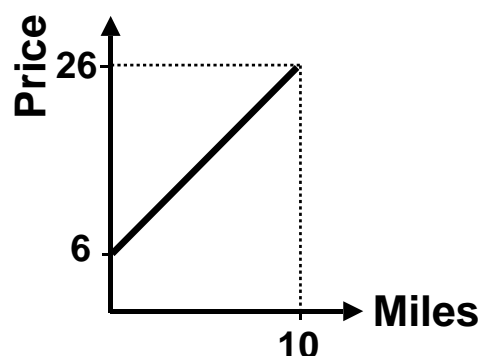
Price of a taxi ride in dependence of the miles travelled:



- a What is the equation for calculating the price of a ride?
- b Calculate the slope.
- c Now the basic fee rises to 8. Show the old and the new situation in a graph.
- d What happens to the slope?

5 Rotation of a straight line

Price of a taxi ride in dependence of the miles travelled:



Now the distance fare rate per mile travelled rises by 0.50.

- a What is the distance fare rate per mile travelled before the price increase?

- b Show the old and the new situation in a graph.
- c What happens to the slope?

6 From a table to the equation and to the graph

Price of a taxi ride:

Miles travelled	Price of the ride
5	14
10	23
15	32
20	41

- a What is the equation?
- b Show the price of a ride depending on the distance travelled in a graph.
- c Calculate the slope.

→ [Answers. Click here!](#)