Domain and Range

Examples

- $y = x^2 - 1$
- $y = \sqrt{9 - x}$
- $y = \sqrt{9 - x^2}$
- $y = \sqrt{x^2 - x - 6}$
- $y = \dfrac{1}{x - 2}$

Example

Delivery Charges

Alpha delivery service charges \$10 for a parcel weighing up to 2 kg. For each additional kg there is an additional charge of \$2.

Let x be the weight of the parcel in kg. Let $P(x)$ be the price to send a parcel with Alpha delivery.

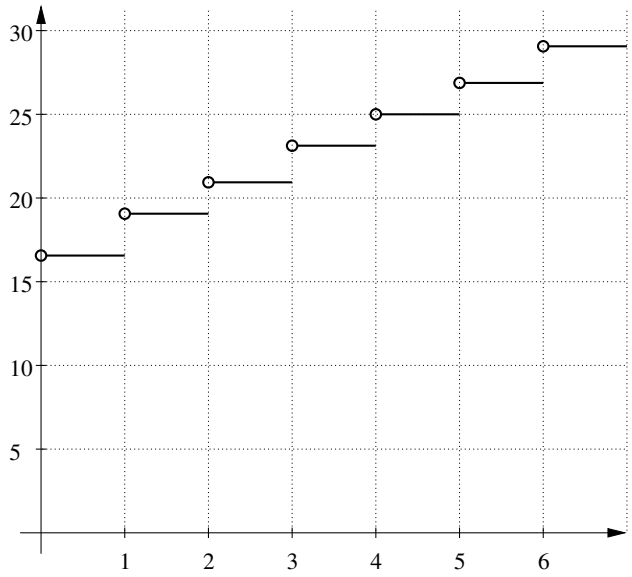
What is $P(x)$?

Graph $P(x)$ for x in the interval $(0, 5]$.

Example

Rental Car Insurance

Recall that MPI charges $15 plus an additional $2 per day for rental insurance. In the last class we modelled this with the linear function $f(x) = 2x + 15$.
But a *better* model is a step function.



Example

Rental Car Insurance (continued)

Suppose Bravo Car Rental charges $8 plus an additional $4 per day for insurance.

1. Make a chart of this step function for the first week.

2. Plot the step function on the same graph as the MPI rate step function.

3. After how many days is MPI cheaper than Bravo?

Example

Area

A rectangular field at Charlie park is going to built with a total perimiter of 2000 m.
Let A be the area of the field, and let the field be ℓ m long by w m wide.

1. Write A as a function of w.

2. What is the domain of $A(w)$?

3. Sketch a rough graph of $A(w)$.

4. Describe what the graph tells you about how the area and width of the field are related.