LINEAR FUNCTIONS

A DEFINITION

Definition Linear Function

A **linear function** is defined by:

$$f(x) = ax + b$$

where a is the slope, and b is the y-intercept.

Ex: Access to a swimming pool costs a fixed entrance fee of \$12, plus \$5 for each hour you stay. Let $P(x)$ be the total price for x hours at the pool. Find a formula for $P(x)$.

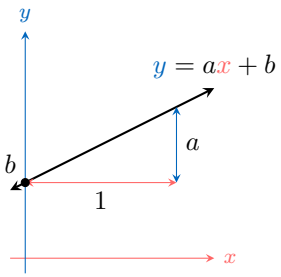
Answer: The total cost is \$12 for entry plus \$5 for each of x hours:

- For $x = 1$, $P(1) = 12 + 5 \times 1$
- For $x = 2$, $P(2) = 12 + 5 \times 2$
- $\vdots$
- For x, $P(x) = 12 + 5 \times x$

B GRAPH

Proposition Graph

The graph of a linear function $f(x) = ax + b$ is a straight line of equation $y = ax + b$, where a is the slope and b is the y-intercept.



Ex: For the function $f(x) = 0.5x + 1$, draw its graph.

Answer: