

1.2 | Constant and Linear Functions

Constant Functions: A constant function is of the form

$$f(x) = b$$

where b is a real number. The domain of a constant function is $(-\infty, \infty)$. A constant function will look like a horizontal line on the graph and intersect the y -axis at b .

Linear Functions: A linear function is of the form

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

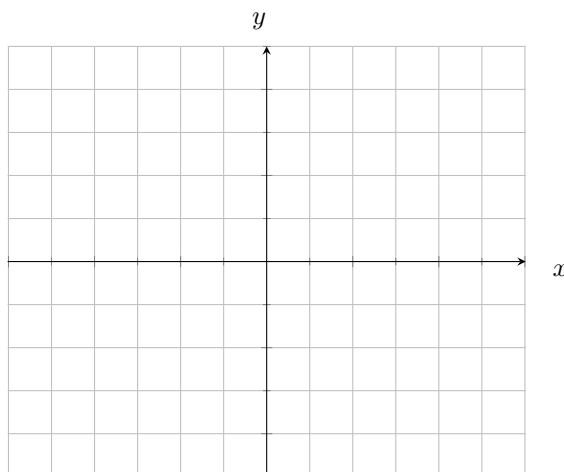
where m and b are real numbers and $m \neq 0$. The domain of a linear function is $(-\infty, \infty)$.

Intercepts: The y *intercept* of a function is where the function crosses the y -axis. This point will look like $(0, f(0))$. The x *intercept* of a function is where the function crosses the x -axis. This point will look like $(c, 0)$ for some real number c .

Slope: The slope of a linear function is the coefficient m . It is often described as *rise over run*. If you are given two points (x_1, y_1) and (x_2, y_2) from a linear function you can find the slope with the following formula:

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

1. **Worked Example:** Graph the function, find the slope and axis intercepts, if any: $f(x) = 3x - 3$

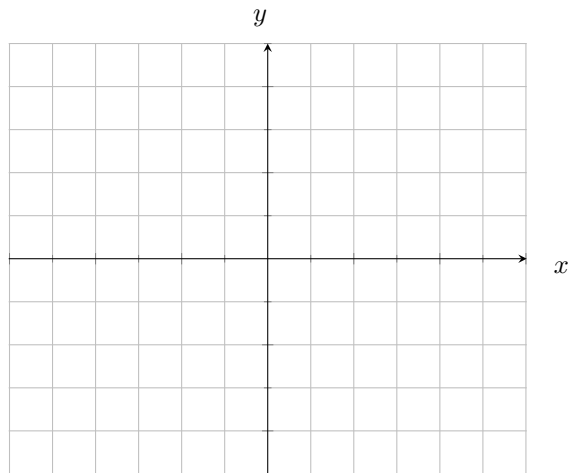


Scan the QR code for a video solution

Problem Solving Tip 1. Finding axis intercepts:

To find an axis intercept, set the variable of the opposite axis equal to zero and solve. To solve the y -axis intercept, set $x = 0$, and to solve the x -axis intercept(s), set $y = 0$.

2. Graph the function, find the slope and axis intercepts, if any: $f(x) = 2x - 1$



3. Graph the function, find the slope and axis intercepts, if any: $g(t) = 3 - t$

