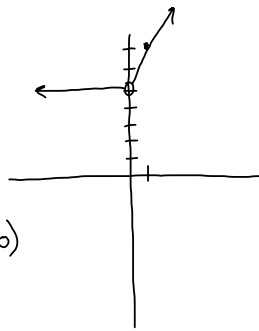


9.5 Piecewise Functions

$$f(x) = \begin{cases} 5 & x < 0 \\ 2x+5 & x > 0 \end{cases}$$



Domain: $(-\infty, 0) \cup (0, \infty)$

Range: $(5, \infty)$

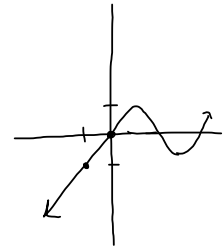
Discontinuity: $(0, 5)$

$$h(x) = \begin{cases} x & \text{if } x \leq 0 \\ \sin x & \text{if } x > 0 \end{cases}$$

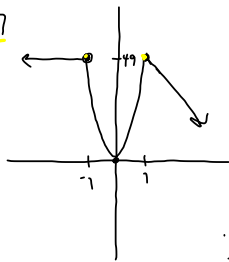
Domain $(-\infty, \infty)$

Range $(-\infty, 1]$

Discontinuity None



$$f(x) = \begin{cases} 49 & \text{if } x < -7 \\ x^2 & \text{if } -7 \leq x \leq 7 \\ 56-x & \text{if } x > 7 \end{cases}$$



Evaluate.

$$h(x) = \begin{cases} \frac{x^2-25}{x-5} & \text{if } x \neq 5 \\ 3 & \text{if } x = 5 \end{cases}$$

(a) $h\left(\frac{3}{5}\right) = 8$ (b) $h(0) = 5$ (c) $h(5) = 3$

\uparrow $x=3$ \uparrow $x=0$ $x=5$

$$\frac{3^2-25}{3-5} = \frac{-16}{-2} \qquad \frac{0^2-25}{0-5}$$