

$$f(x) = \frac{1}{x}$$

- 1 Find  $f'(x)$ .
- 2 Find an equation for the line tangent to  $f$  at  $x = -2$ .

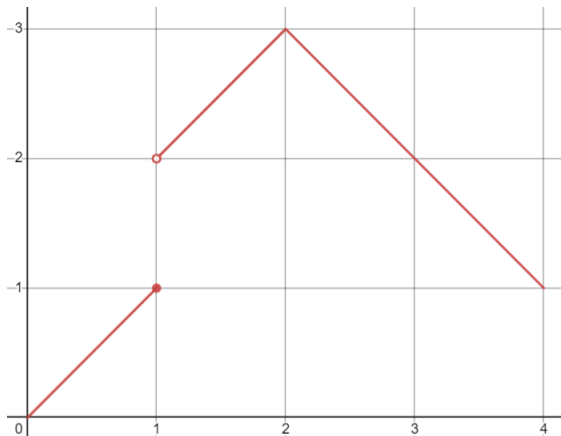
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# Bellwork 9/29 - Solutions, Part 1

$$\begin{aligned}f'(x) &= \lim_{h \rightarrow 0} \left( \frac{\frac{1}{x+h} - \frac{1}{x}}{h} \right) \\&= \lim_{h \rightarrow 0} \left( \frac{\frac{x-x-h}{x^2+hx}}{h} \right) \\&= \lim_{h \rightarrow 0} \left[ \frac{-h}{h(x^2 + hx)} \right] = \boxed{-\frac{1}{x^2}}\end{aligned}$$

# Bellwork 9/29 - Solutions, Part 2

# Exercise 1



Sketch  $f'(x)$  and find where  $f$  is not differentiable.

# Exercise 1 - Solution