

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

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

reset

# 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

$$y - y_1 = m(x - x_1)$$

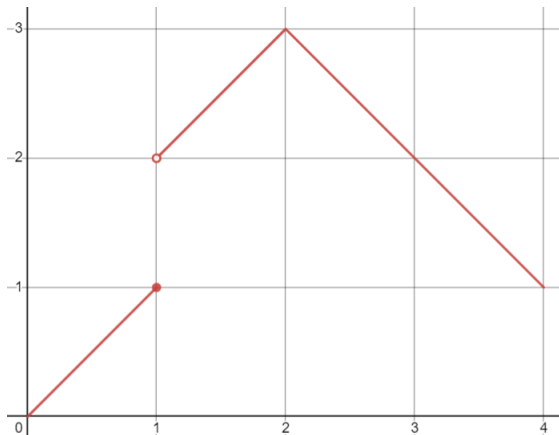
$$\implies y - f(-2) = f'(-2)(x + 2)$$

$$\implies y = -\frac{1}{4}(x + 2) - \frac{1}{2}$$

$$\implies \boxed{y = -\frac{1}{4}x - 1}$$

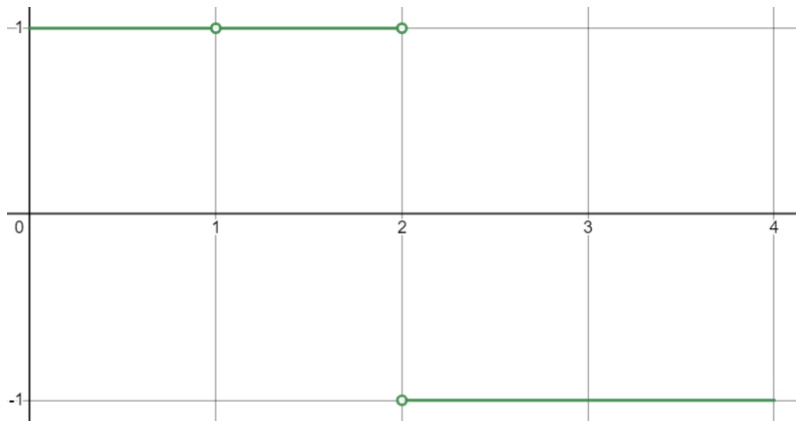
# Exercise 1

Function  $f$  is graphed below:



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

# Exercise 1 - Solution



$$x = 1, 2$$