

Follow these steps:

① Create one graph for each piece whose "if" condition is an inequality.

② Cut each graph vertically at the x-values specified in the "if" condition. Keep only the relevant parts, putting open and closed dots as needed. Paste them together to begin creating your final graph. Be sure to line up the x-axis.

③ Add a closed dot to your graph for each piece whose "if" condition is an equality.

④ Put "finishing touches" on your graph; for example, label the x-axis and y-axis, put numbers on the x-axis and y-axis to establish the scale of the graph, etc.

\* A graph is "continuous" if you can draw all of it without picking up your pencil.

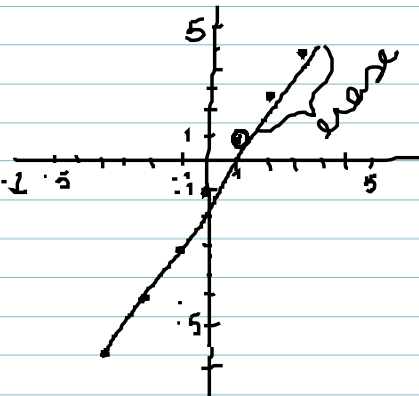
Problem (Answers)

$$f(x) = \begin{cases} 2x-1 & \text{if } x < 1 \\ -x+2 & \text{if } x \geq 1 \end{cases}$$

$$y = \underset{\substack{\text{slope} \\ 2}}{2}x + \underset{\substack{\text{y-int} \\ 1}}{1}$$

$$m = \frac{\text{rise}}{\text{run}}$$

$$y\text{-int} = -1$$



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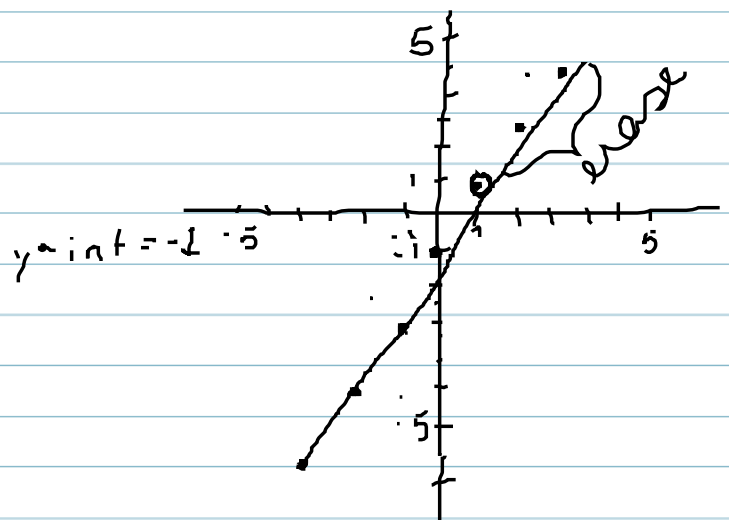
$$f(x) = \begin{cases} 2x - 1 & \text{if } x < 1 \\ -x + 2 & \text{if } x \geq 1 \end{cases}$$

$$y = \boxed{2}x + \boxed{1}$$

slope  
 $\frac{2}{1}$

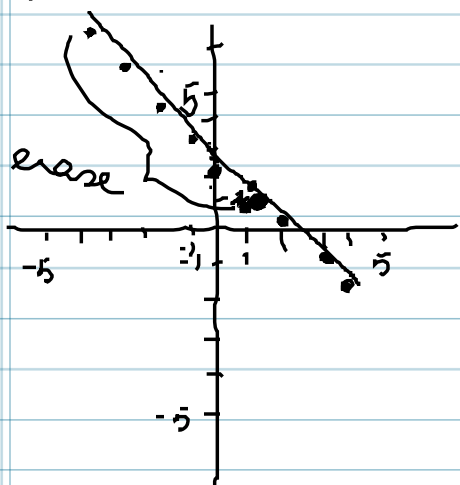
$$m = \frac{\text{rise}}{\text{run}}$$

$$y\text{-int} = -1.5$$

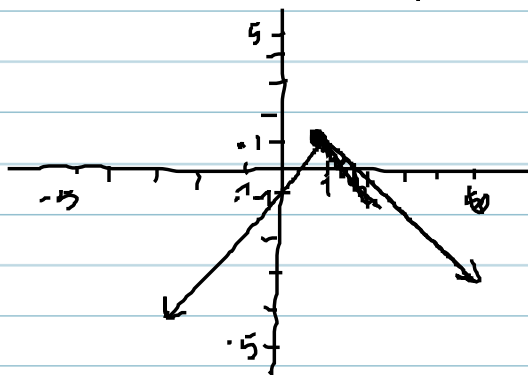


$$y = -x + 2 \quad -\frac{1}{1} \text{ rise} \quad y\text{-int } 2$$

$$y = -1x + 2 \quad 1 \text{ run}$$



Final Graph



• Evaluate Piecewise-Defined Functions

$$① \quad f(x) = \begin{cases} -\frac{1}{4}x^2 & \text{if } x \neq -2 \\ -3 & \text{if } x = -2 \end{cases}$$

Find  $f(-5)$ ,  $f(-2)$ , and  $f(0)$

•  $f(-5)$   $x$  is  $-5$

$$f(x) = -\frac{1}{4}x^2 + 4$$

$$f(\quad) = -\frac{1}{4}(\quad)^2 + 4$$

$$f(-5) = -\frac{1}{4}(-5)^2 + 4$$

$$f(-5) = \frac{25}{4} + \frac{4}{1}$$

$$f(-5) = -\frac{25}{4} + \frac{16}{4} = \boxed{-\frac{9}{4}}$$

•  $f(-2)$   $x$  is  $-2$   $f(x) = -3$

(-3)

★ The  $x$  tell you what equation to use ★

•  $f(0)$   $x$  is  $0$

$$f(x) = -\frac{1}{4}x^2 + 4$$

$$f(0) = -\frac{1}{4}(0)^2 + 4$$

$$f(0) = \boxed{4}$$