Graphing Piecewise Functions Using Slope

STEPS

Step 1: Draw a vertical dashed line to represent the points of discontinuity of the graph at the domain value.

Step 2: Substitute the domain value into the top equation to determine where to start counting the slope. (closed point or open?)

Step 3: Determine which direction you should count your slope by looking at the domain!! If x < or ≤ the value count to the left of Your starting point!!

NOTE: x > OR ≥ value, count to the right.

Step 4: Repeat Steps 2 and 3 with the bottom equation! This time, because x ≥ the domain, count the slope to the right !!

Example

$$f(x)=\begin{cases}\frac{1}{2}x+\frac{3}{2}, if\ x<1\\ -x+3, if\ x\geq 1\end{cases}$$

$f(1)=\frac{1}{2}(1)+\frac{3}{2}$

$f(1)=\frac{1}{2}+\frac{3}{2}$

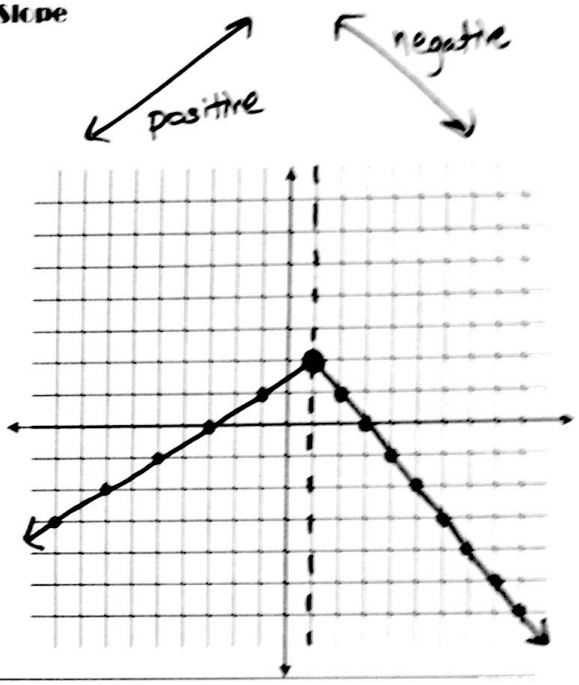
$f(1)=\frac{4}{2}=2$

$(1,2)$

$f(1)=-1+3$

$f(1)=2$

$(1,2)$



YOU TRY!!

$$f(x)=\begin{cases}\frac{2}{3}x+\frac{2}{3}, if\ x>2\\ -x+1, if\ x\leq 2\end{cases}$$

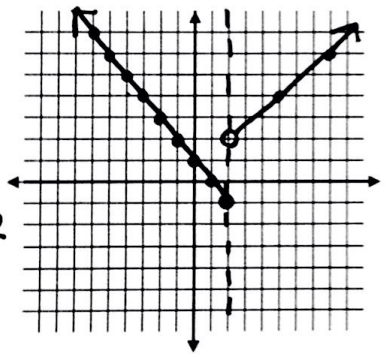
$f(2)=\frac{2}{3}(2)+\frac{2}{3}$

$f(2)=\frac{4}{3}+\frac{2}{3}=\frac{6}{3}=2$

$(2,2)$

$f(2)=-2+1=-1$

$(2,-1)$



x coordinate(s) for which there are point(s) of discontinuity? 2

$$f(x)=\begin{cases}-\frac{1}{2}x-1, if\ x<-2\\ x, if\ -2\leq x\leq 1\\ 2, if\ x>1\end{cases}$$

$f(-2)=-\frac{1}{2}(-2)-1$

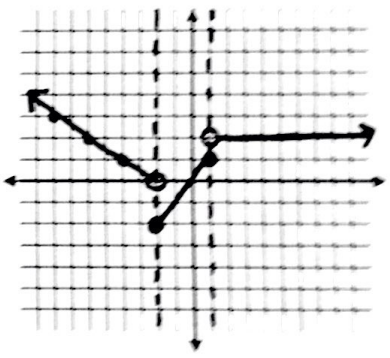
$f(-2)=1-1=0$

$(-2,0)$

$f(-2)=-2$ $(-2,-2)$

$f(1)=1$ $(1,1)$

$f(1)=2$ $(1,2)$



x coordinate(s) for which there are point(s) of discontinuity? -2, 1