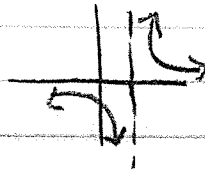


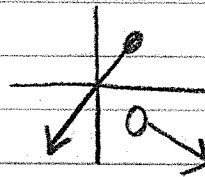
# Notes Section 1.3 and 1.5: Discontinuity and Piecewise Functions

## types of discontinuity

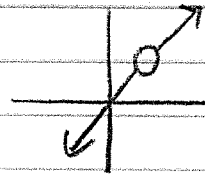
infinite discontinuity



jump discontinuity



removable discontinuity



• determine if continuous at the given point. If not, tell what kind of discontinuity

1.  $f(x) = \frac{1}{x-1}$  at  $x=1$  infinite

at  $x=2$  continuous

2.  $f(x) = \frac{x-2}{x^2-4}$  at  $x=2$  removable

$$\frac{\cancel{(x-2)}}{\cancel{(x-2)}(x+2)}$$

at  $x=-2$  infinite

at  $x=3$  continuous

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

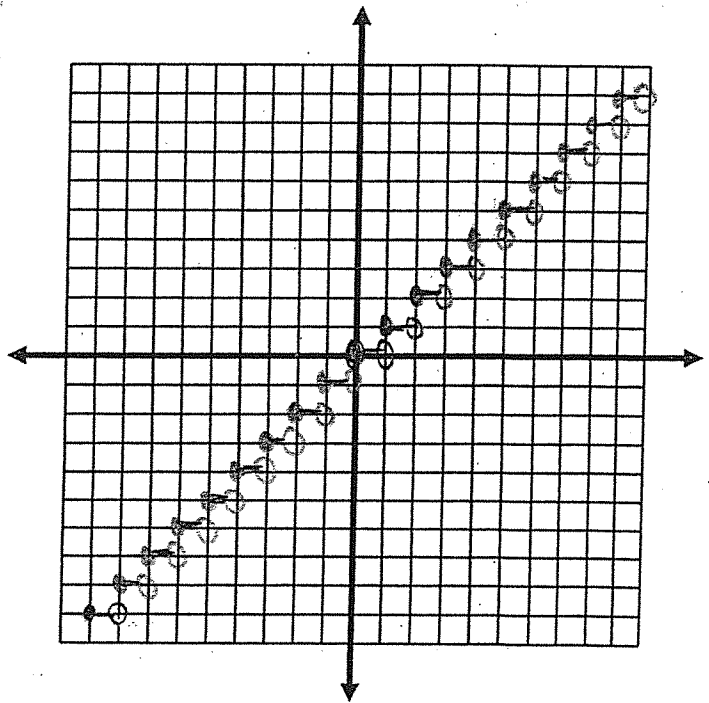
at  $x=2$

jump

piecewise functions

$$f(x) = \lfloor x \rfloor$$

greatest integer function



$$f(x) = \begin{cases} |x+2| & \text{if } x < 0 \\ |x|-2 & \text{if } 0 \leq x \leq 2 \\ \sqrt{x-2} + 2 & \text{if } x > 2 \end{cases}$$

