

Remember to start with bell work in Canvas.

Aug 23-7:27 AM

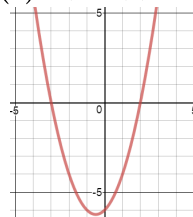
Pre-Calculus Sec 1.2 Functions and their Properties

**Continuity** - A graph is continuous if there are no holes or breaks in the graph.  
A more formal definition is in Calculus dealing with limits.

Easy way to check continuity is if there is no denominator in the equation or no variable in the denominator, then it will be continuous.

example of a continuous graph

$$f(x) = (x + 3)(x - 2)$$



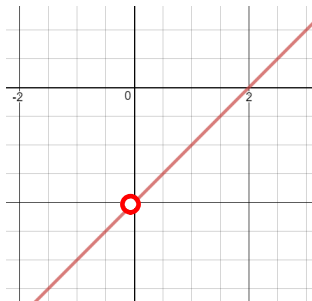
✳ If there is a variable in the denominator, it is NOT continuous.

Aug 29-9:37 AM

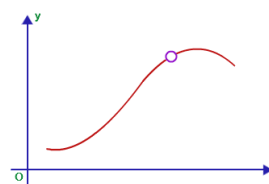
If a graph is not continuous - there are 4 types of discontinuity.

ex.  $\frac{x(x-2)}{x}$

the variable in  
the denominator gets  
"cancelled out"



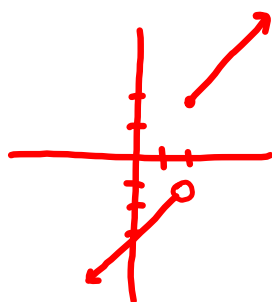
## #1 Removable with hole



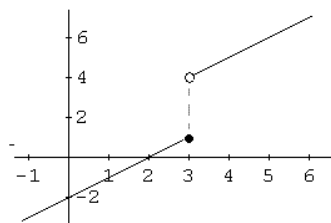
Aug 29-9:40 AM

ex. (piecewise function)

$$y = \begin{cases} x, & x \geq 2 \\ x - 3, & x < 2 \end{cases}$$



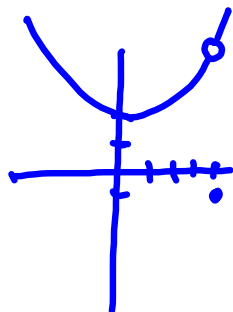
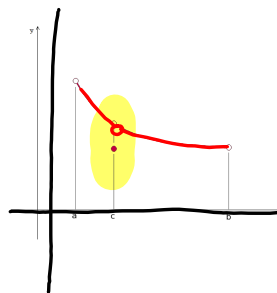
## #2 Jump discontinuity.



Aug 29-9:42 AM

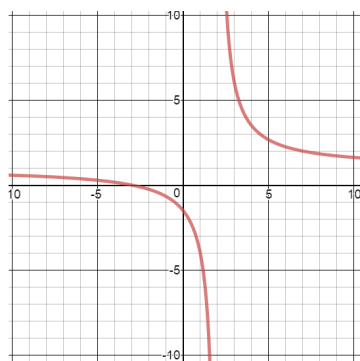
ex. piecewise functions

$$y = \begin{cases} x^2 + 2, & x \neq 4 \\ -1, & x = 4 \end{cases}$$

#3 Removable  
with point somewhere else.

Aug 29-9:42 AM

ex.  $f(x) = \frac{x+3}{x-2}$



#4 Non-removable discontinuity

If denominator  
can't cancel with  
numerator then  
non removable.

Aug 21-12:05 PM