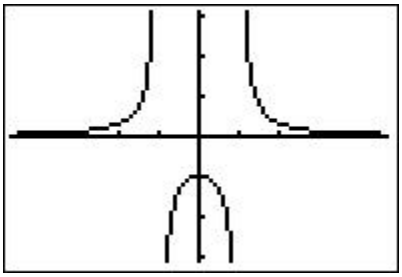
CONTINUITY EXERCISES – ANSWERS

Graph each function and find all real number values at which the given functions are not continuous.

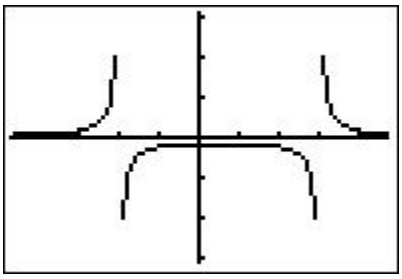
1. $f(x)=\dfrac{1}{x^2-1}=\dfrac{1}{(x+1)(x-1)}$

Not continuous at $x=-1$ & $x=1$.



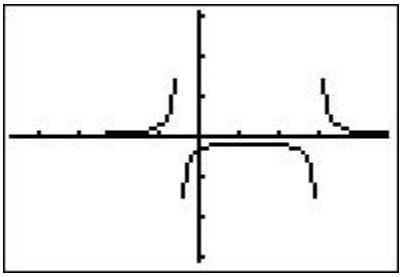
2. $f(x)=\dfrac{1}{x^2-x-6}=\dfrac{1}{(x-3)(x+2)}$

Not continuous at $x=-2$ & $x=3$.



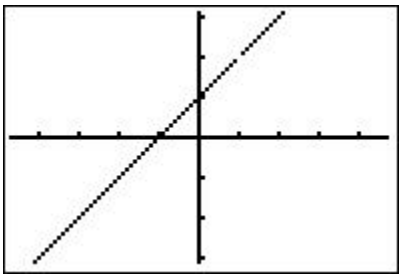
3. $f(x) = \dfrac{1}{2x^2 - 5x - 3} = \dfrac{1}{(2x+1)(x-3)}$

Not continuous at $x = -1/2$ & $x = 3$.



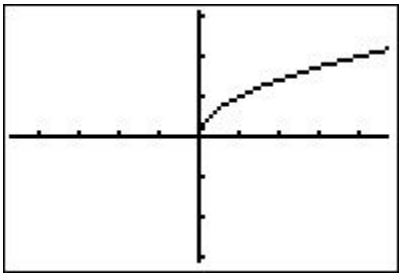
4. $f(x) = \dfrac{x^2 - 1}{x - 1} = \dfrac{(x+1)(x-1)}{(x-1)} = x + 1$, if $x \neq 1$

Not continuous at $x = 1$.



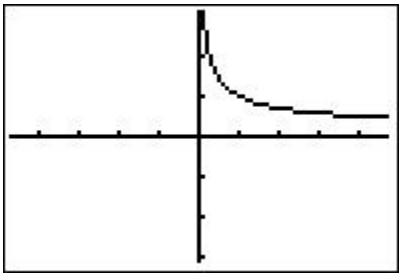
5. $f(x) = \sqrt{x}$

Not continuous at $x < 0$.



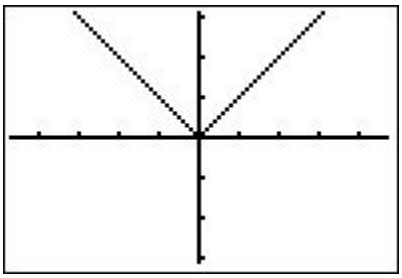
6. $f(x)=\dfrac{1}{\sqrt{x}}$

Not continuous at $x \le 0$.



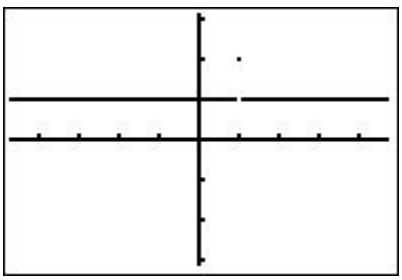
7. $f(x)=|x|$

Nowhere not continuous.
Continuous at all real numbers.



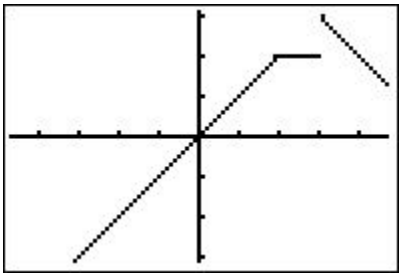
8. $f(x)=\begin{cases}1 & \text{if } x \ne 1 \\ 2 & \text{if } x = 1\end{cases}$

Not continuous at $x=1$.



9. $f(x)=\begin{cases} x & \text{if } x<2 \\ 2 & \text{if } 2\le x\le 3 \\ -x+6 & \text{if } x>3 \end{cases}$

Not continuous at $x=3$.



10. $f(x)=\begin{cases} x & \text{if } x<2 \\ 2 & \text{if } 2\le x\le 3 \\ -x+5 & \text{if } x>3 \end{cases}$

Nowhere not continuous.
Continuous at all real numbers.