

12/6/12 Finding the domain of a Function

Recall: The domain is what the x values can be.

For fractions, you cannot have 0 in the denominator.

Find the domain of each function

Ex

① $f(x) = \frac{3}{6+x}$

$$\begin{array}{r} 6+x \neq 0 \\ -6 \quad -6 \\ \hline x \neq -6 \end{array}$$

Domain: $x \neq -6$

② $f(x) = \frac{27}{x+4}$

$$\begin{array}{r} x+4 \neq 0 \\ -4 \quad -4 \\ \hline x \neq -4 \end{array}$$

Domain: $x \neq -4$

③ $g(x) = \frac{2}{4x}$

$$\begin{array}{r} 4x \neq 0 \\ \frac{4}{4} \quad \frac{4}{4} \\ \hline x \neq 0 \end{array}$$

Domain: $x \neq 0$

④ $f(x) = \frac{1}{x-5}$

$$\begin{array}{r} x-5 \neq 0 \\ +5 \quad +5 \\ \hline x \neq 5 \end{array}$$

Domain: $x \neq 5$

For $\sqrt{\quad}$, you cannot have \ominus s under the radical.

⑤ $f(x) = \sqrt{x-3}$

$$\begin{array}{r} x-3 \geq 0 \\ +3 \quad +3 \\ \hline x \geq 3 \end{array}$$

Domain: $x \geq 3$

⑥ $f(x) = \sqrt{3+x}$

$$\begin{array}{r} 3+x \geq 0 \\ -3 \quad -3 \\ \hline x \geq -3 \end{array}$$

Domain: $x \geq -3$

⑦ $g(x) = \sqrt{x}$

$$x \geq 0$$

Domain: $x \geq 0$

⑧ $h(x) = \sqrt{5-x}$

$$\begin{array}{r} 5-x \geq 0 \\ -5 \quad -5 \\ \hline -x \geq -5 \\ \underline{-1} \quad \underline{-1} \\ x \leq 5 \end{array}$$

Domain: $x \leq 5$

Note: If you don't have fractions or radicals, the domain is

All Real Numbers

⑨ $f(x) = 2x-3$

D: All Real #s

⑩ $g(x) = x^3-2$

D: all Real #s