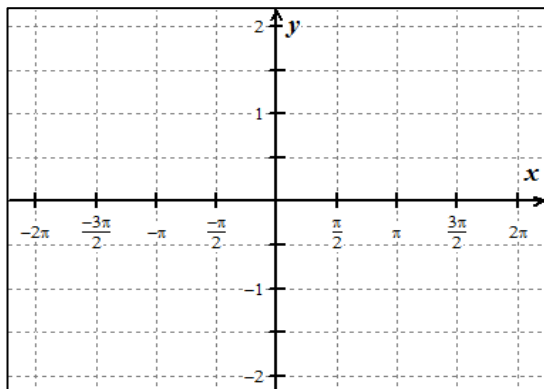


Trigonometric: $f(x) = \sin x$

Domain:

Range:

Period:

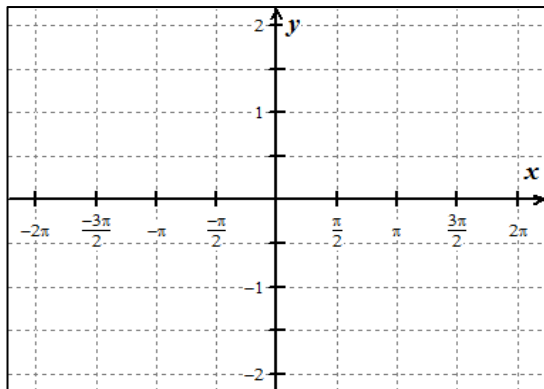


Trigonometric: $f(x) = \cos x$

Domain:

Range:

Period:

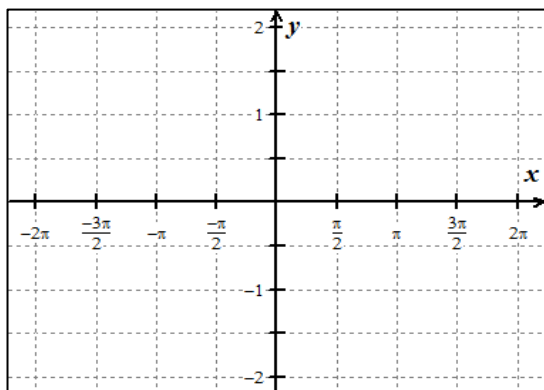


Trigonometric: $f(x) = \tan x$

Domain:

Range:

Period:



LIBRARY OF FUNCTIONS

In advanced mathematics you will find it helpful to analyze functions that appear repeatedly. This lesson will help you recognize basic properties and characteristics of common functions.

DIRECTIONS

You should be able to give a complete analysis for each of the “parent functions”. The analysis should include as many of the following as possible:

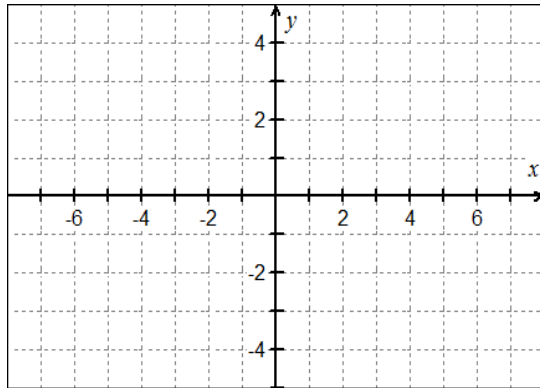
- Domain
- Range
- Roots
- y -intercept(s)
- Increasing/decreasing behavior
- Symmetry (even/odd)
- Boundedness
- Local extrema
- Horizontal asymptotes
- Vertical asymptotes
- End behavior
- Continuity

Constant Function $f(x) = c$

Domain:

Range:

End behavior:



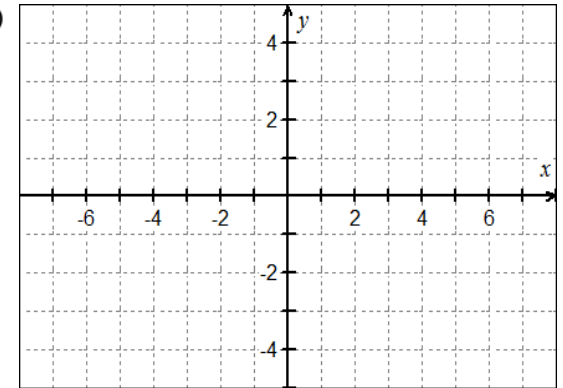
Absolute Value:

$$f(x) = |x| = \begin{cases} -x, & x < 0 \\ x, & x \geq 0 \end{cases}$$

Domain:

Range:

End behavior:

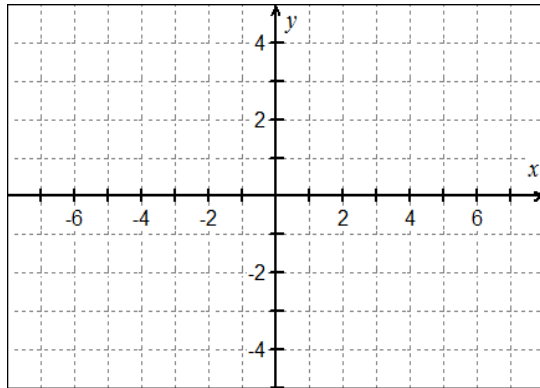


Identity Function $f(x) = x$

Domain:

Range:

End behavior:

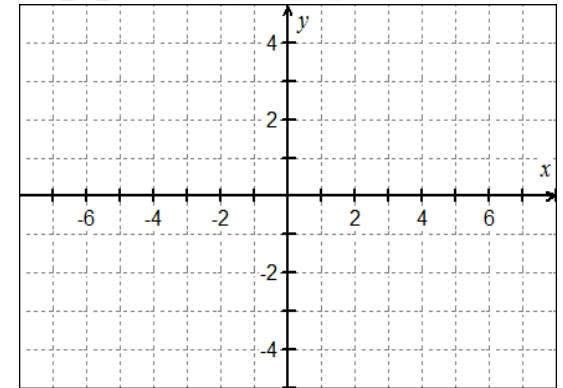


Greatest Integer: $f(x) = \lceil x \rceil$ or $f(x) = \lfloor x \rfloor$

Domain:

Range:

End behavior:

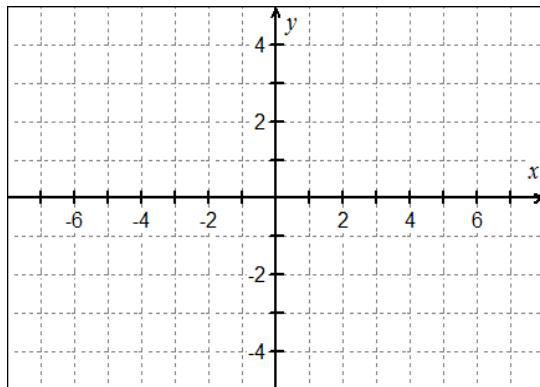


Reciprocal Function $f(x) = \frac{1}{x}$

Domain:

Range:

End behavior:



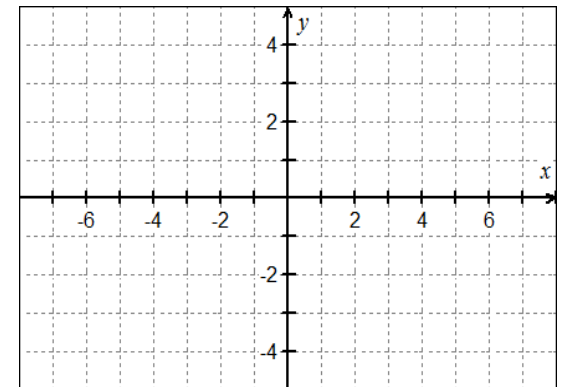
Signum Function

$$f(x) = \begin{cases} \frac{|x|}{x}, & x \neq 0 \\ 0, & x = 0 \end{cases}$$

Domain:

Range:

End behavior:

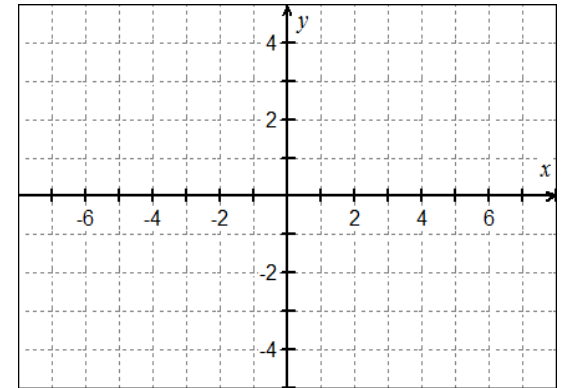


Quadratic Function $f(x) = x^2$

Domain:

Range:

End behavior:

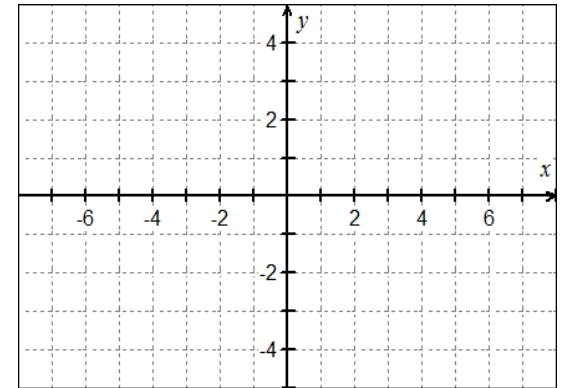


Cubic Function $f(x) = x^3$

Domain:

Range:

End behavior:

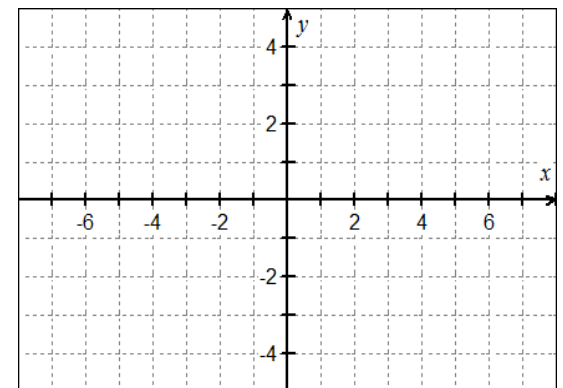


Square Root Function $f(x) = \sqrt{x}$

Domain:

Range:

End behavior:



CCSS: HSF.1F.B.4 ; HSF.1F.C.7.A; HSF.1F.C.7.B; HSF.1F.C.7.C;
HSF.1F.C.7.D; HSF.1F.C.7.E



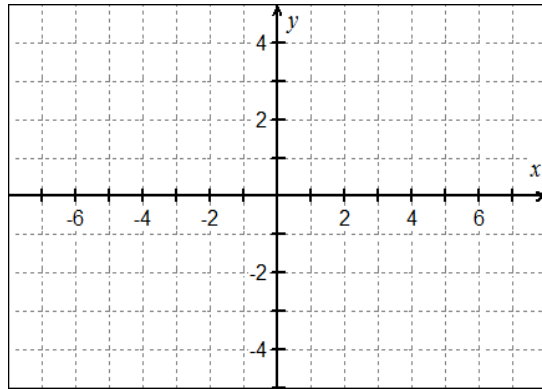
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Cube Root Function $f(x) = \sqrt[3]{x}$

Domain:

Range:

End behavior:

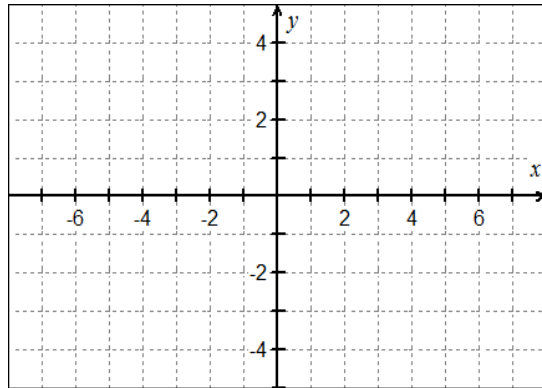


Exponential Function $f(x) = b^x$ (base 2)

Domain:

Range:

End behavior:

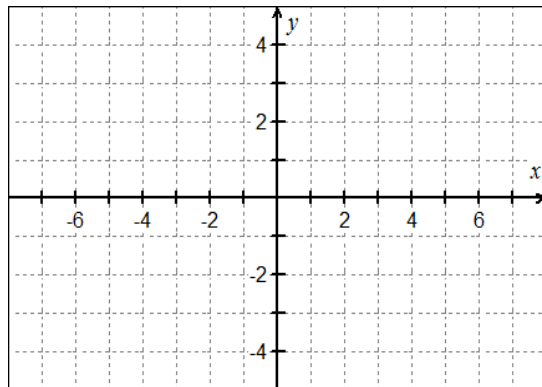


Logarithmic Function $f(x) = \log_b x$ (base 2)

Domain:

Range:

End behavior:

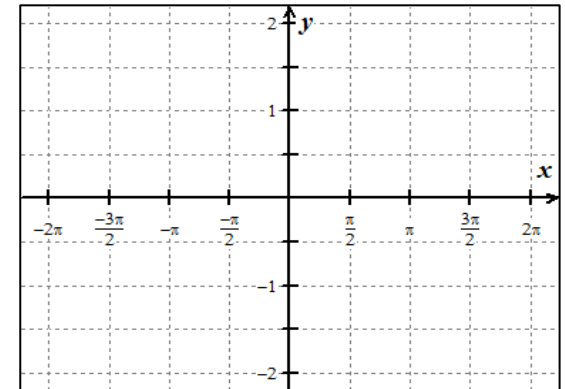


Trigonometric: $f(x) = \csc x$

Domain:

Range:

Period:

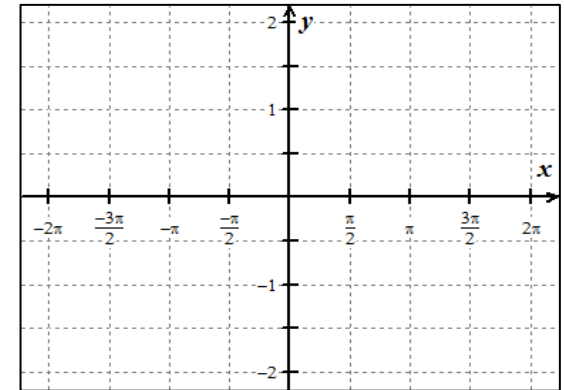


Trigonometric: $f(x) = \sec x$

Domain:

Range:

Period:



Trigonometric: $f(x) = \cot x$

Domain:

Range:

Period:

