

Solving Equations:**Rational:** (p.721-748) & 10.3 HW & Quiz

1) Solve each equation. Check for extraneous solutions

a.) $\frac{3}{x^2 + 2x} = \frac{6}{x^2}$

b.) $\frac{2}{x + 3} + \frac{6}{x^2 + 3x} = \frac{1}{x}$

Radical: (p. 830-838) & 11.6 HW & Quiz

2.) Solve each equation. Check for extraneous solutions.

a.) $\sqrt{10x - 1} - 7 = -5$

b.) $x + 2 = \sqrt{3x + 10}$

c.) $\sqrt{3x - 5} = 1 - \sqrt{2x}$

Exponential: (p. 941-952) & 13.3 HW & Quiz

3) Solve each equation. Solve at least one using the change of base formula and one using properties of logs.

a.) $4^{x+3} - 7 = 32$

b.) $4\left(\frac{2}{3}\right)^{3x} = 248$

c.) $3^{x+7} - 5 = 63$

d.) $3(4)^{3x-6} + 2 = 35$

Logarithmic: (p.953-970) & 13.4 HW & Quiz

4) Solve each equation. Make sure to check for extraneous solutions.

a.) $\log_6(x^2 + 5x) = 2$

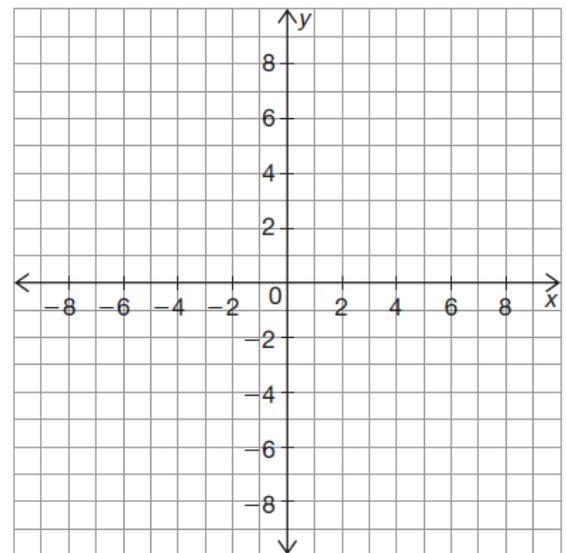
b.) $\log(2x^2 + 3) + \log 2 = \log 10x$

c.) $\ln\left(x^2 + \frac{15}{2}\right) + \ln 2 = \ln(11x)$

Graphing Functions & Identifying Key Features (intercepts, asymptotes, domain/range)

5) Exponential: (p. 857-880) & 12.2-12.3 HW & Quizzes

a.) Make a table of values and graph the function: $f(x) = \left(\frac{1}{2}\right)^x$



b) What is the domain and range of the function?

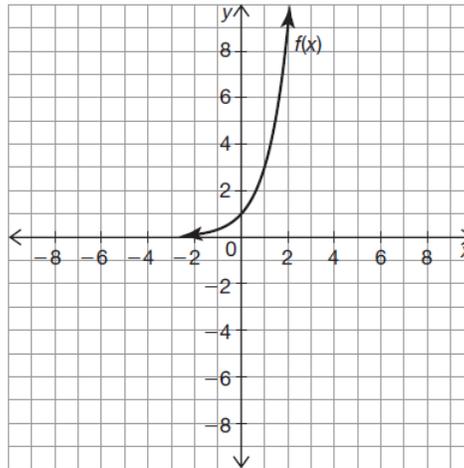
c) What are the asymptotes of the graph?

d) What are the x-and y-intercepts of the graph?

e) Describe the ending behavior of the function.

6.) The graph of the function $f(x) = 3^x$ is shown. Draw a graph of the function $c(x) = -f(x) + 2$ on the same coordinate grid. Show the three corresponding reference points on your graph. Then find the domain, range and asymptotes of $c(x)$.

Reference Points on $f(x)$	Corresponding Points on $c(x)$
$(-1, \frac{1}{3})$	
$(0, 1)$	
$(1, 3)$	



Domain:

Range:

Horizontal asymptote:

Intercepts:

Describe any dilations, translations, or reflections used to create the new function:

7) Logarithmic: (p. 881-908) & 12.4-12.5 HW & Quizzes

Integrated Math 3 Unit Quiz 12.5

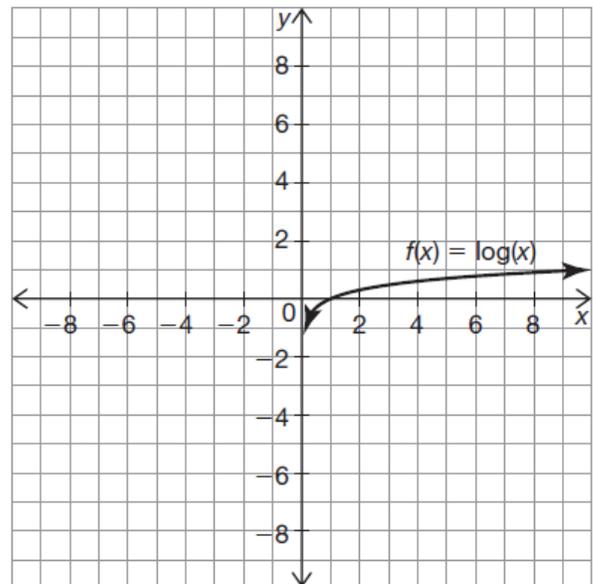
a) The graph of $f(x) = \log(x)$ is shown. Use the graph of $f(x)$ to sketch the transformed function $m(x)$ on the coordinate plane. Then, state the domain, range and asymptotes of $m(x)$.

$$m(x) = f(x + 1) - 3.$$

Domain of $m(x)$:

Range of $m(x)$:

Asymptote of $m(x)$:



8) Rational: (p.650-690) & 9.1-9.4 HW & Quizzes

Consider the function. $g(x) = \frac{-3}{x+2} + 1$

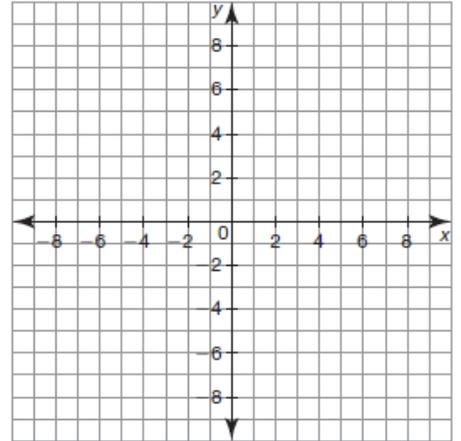
a.) Describe how you would obtain the graph of $g(x)$ from the graph of $f(x) = \frac{1}{x}$.

b.) Determine the vertical asymptotes and horizontal asymptotes of $g(x)$

c.) Determine the y-intercept of $g(x)$

d.) Sketch the graph of $g(x)$

e.) State the domain and range of $g(x)$, including any restrictions.



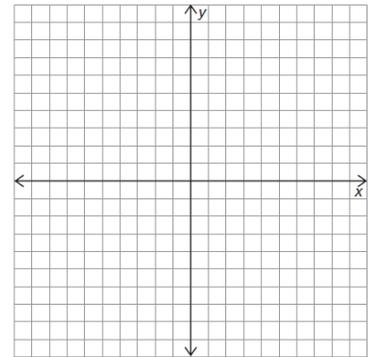
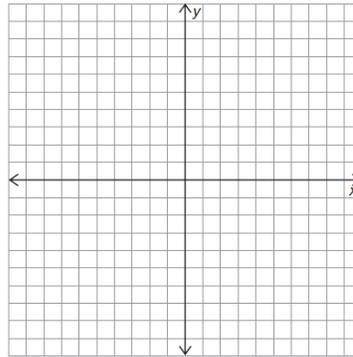
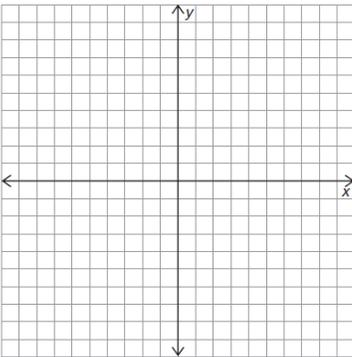
9) Radical: (p.783–p.800) & 11.2-11.3 HW & Quiz

Describe each transformation you would perform to obtain the following functions graph from its parent function. Then graph the function. State the domain and range and any x or y- intercepts.

a.) $g(x) = -\sqrt[3]{\frac{1}{2}x + 3}$

b.) $g(x) = 4\sqrt{-x}$

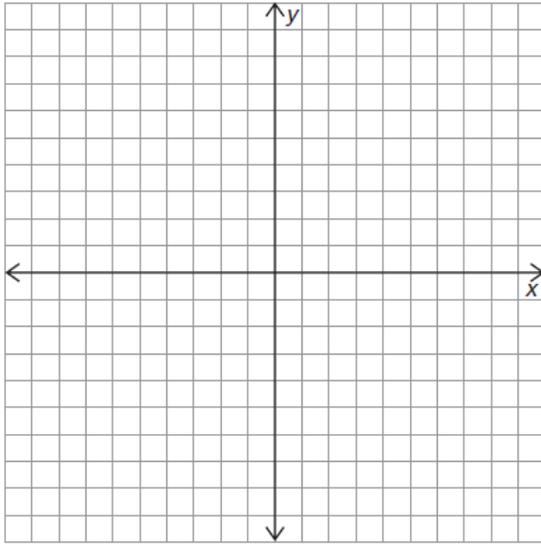
c.) $g(x) = \sqrt[3]{x+4} - 3$



Graphing and Finding the Equation of an Inverse Function:

10) Inverse of Power Functions (p. 772-792) & 11.1-11.2 HW & Quizzes

1.) $y = x^2 + 3$



a.) Is this function invertible? Explain how you can tell from just the equation. Explain how you can tell if you had a graph.

b.) Write the inverse equation.

c.) Verify your inverse is correct using composition of functions. Show all work

d.) Graph the original equation and its inverse.

e.) Write the domain and range of the original function and its inverse in interval notation.

Original Function

Inverse Function

Domain:

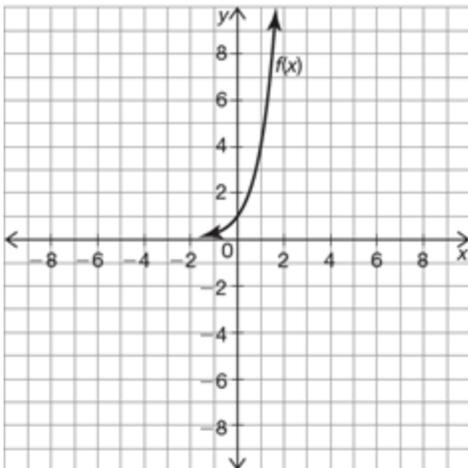
Domain:

Range:

Range:

11) Inverse of Exponential Functions (p. 882-894) & 12.4 HW & Quiz

$f(x) = 4^x$



Domain:

Range:

Asymptotes:

End behavior: