HW Questions →

Pick up the Warm Up

Reminder:

Test next Wednesday

$3 = \log_{2.5}(x)$

base

$2.5^3 = x$

So...

$x = 15.625$

$2\log(x) + \log(4x) = 4$

$\log(x^2) + \log(4x) = 4$

$\log(x^2 \cdot 4x) = 4$

$\log(4x^3) = 4$

$4x^3 = 10^4$

$x^3 = \frac{10^4}{4}$

$x^3 = 2500$

$x = \sqrt[3]{2500}$

2. Subtract the rational expressions and simplify

$$\frac{x^2}{x-5} - \frac{25}{x-5}$$

$$\frac{x^2 - 25}{x-5}$$

$$\frac{(x+5)(x-5)}{x-5}$$

$x+5$

3. Find the inverse of each of the functions below.

$$j(x) = \frac{2}{3-x}$$

$x = \frac{2}{3-y}$

$x(3-y) = 2$

$3x - xy = 2$

$-3x \quad -3x$

$3 - y = \frac{2}{x}$

$\frac{-xy}{-x} = \frac{2}{-x} - \frac{3x}{-x}$

$-y = \frac{2}{x} - 3$

$y = \frac{2}{3x} - \frac{3x}{3x}$

$j^{-1}(x) = -\frac{2}{x} + 3$

$y = \frac{2}{x} + 3$

Questions on HW

121

$$\frac{x+2}{x^2-9} - \frac{1}{x+3} \rightarrow \frac{x+2}{(x+3)(x-3)} - \frac{1}{(x+3)} \cdot \frac{(x-3)}{(x-3)}$$

$$\frac{x+2-(x-3)}{(x+3)(x-3)} \rightarrow \frac{x+2-x+3}{(x+3)(x-3)}$$

$$\frac{5}{(x+3)(x-3)}$$

6-127. Ryan has the chickenpox! He was told that the number of pockmarks on his body would grow exponentially until his body overcomes the illness. He found that he had 60 pockmarks on November 1, and by November 3 the number had grown to 135. To find out when the first pockmark appeared, he will need to find the exponential function that will model the number of pockmarks based on the day. Homework Help

a. Ryan decides to find the exponential function that passes through the points (3, 135) and (1, 60). Use these points to write the equation of his function of the form $f(x) = ab^x$.

b. According to your model, what day did Ryan get his first chickenpox pockmark?

$(3, 135)$ $(1, 60)$

$y = ab^x$ $y = ab^x$

$135 = ab^3$ $60 = ab^1$

$$\frac{135}{60} = \frac{ab^3}{ab^1}$$

$$\frac{135}{60} = b^2$$

$$b^2 = \frac{135}{60}$$

$$b = \pm\sqrt{\frac{135}{60}}$$

131

$y = ax^2 + bx + c$

Find the equation of the parabola that passes through the points (–2, 24), (3, –1), and (–1, 15).

$(-2, 24)$ $24 = a(-2)^2 + b(-2) + c$

6-133. Solve each of the following equations for x.

a. $x^3 = 243$

b. $3^x = 243$

Today:

Solve a variety of both exponentianal and log equations.

Solve Log Equations

a) $\log(3n-5) = \log(n+1)$

$3n-5 = n+1$

$\downarrow$

$n = 3$

b) $16 = 2\log_2\left(\frac{3}{x}\right)$

divide by 2

$8 = \log_2\left(\frac{3}{x}\right)$

$x \cdot 2^8 = \frac{3}{x} \cdot x$

$2^8 \cdot x = 3$

$x = \frac{3}{2^8} = \boxed{\frac{3}{256}}$

$16 = \log_2\left[\left(\frac{3}{x}\right)^2\right]$

c) $3 = \log_2(x) + \log_2\left(\frac{x}{3}\right)$

$3 = \log_2\left[x \cdot \frac{x}{3}\right]$

$3 = \log_2\left(\frac{x^2}{3}\right)$

$\frac{x^2}{3} = 2^3$

$x^2 = 24$

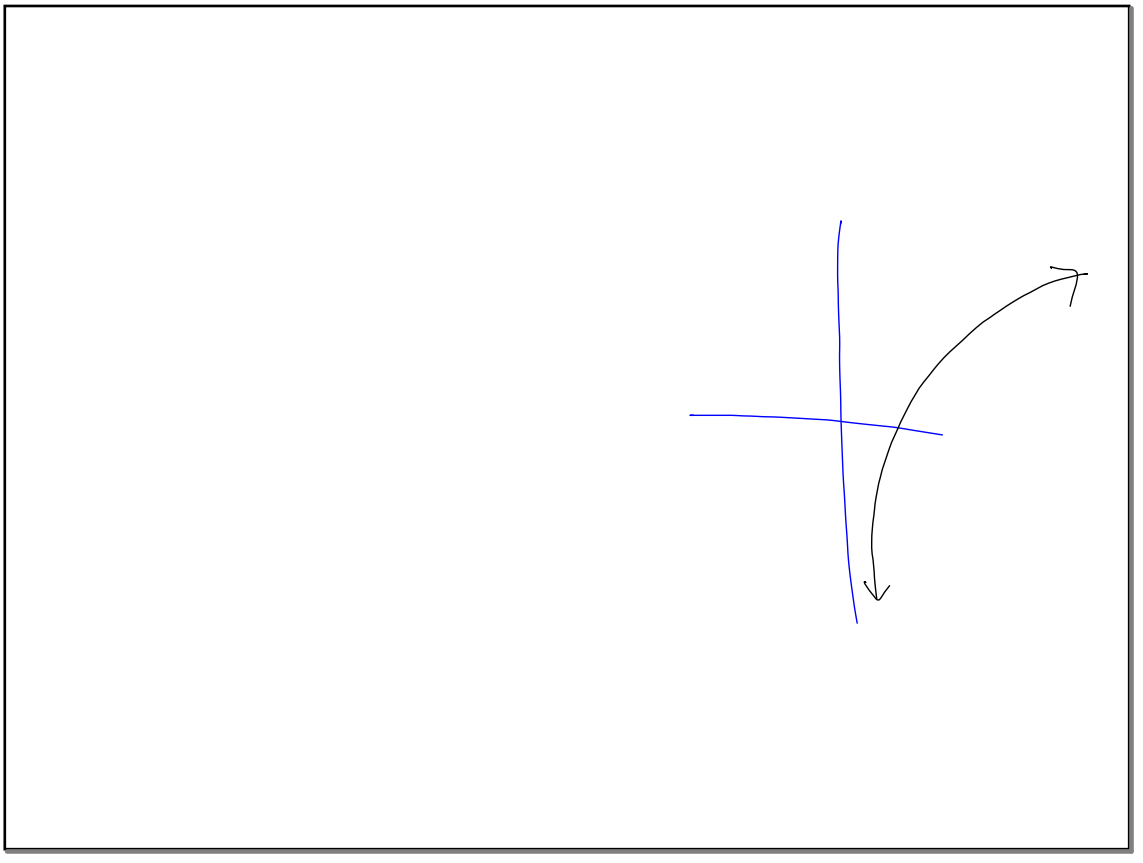
$\sqrt{\quad}$ $\sqrt{\quad}$

$x = \pm\sqrt{24}$

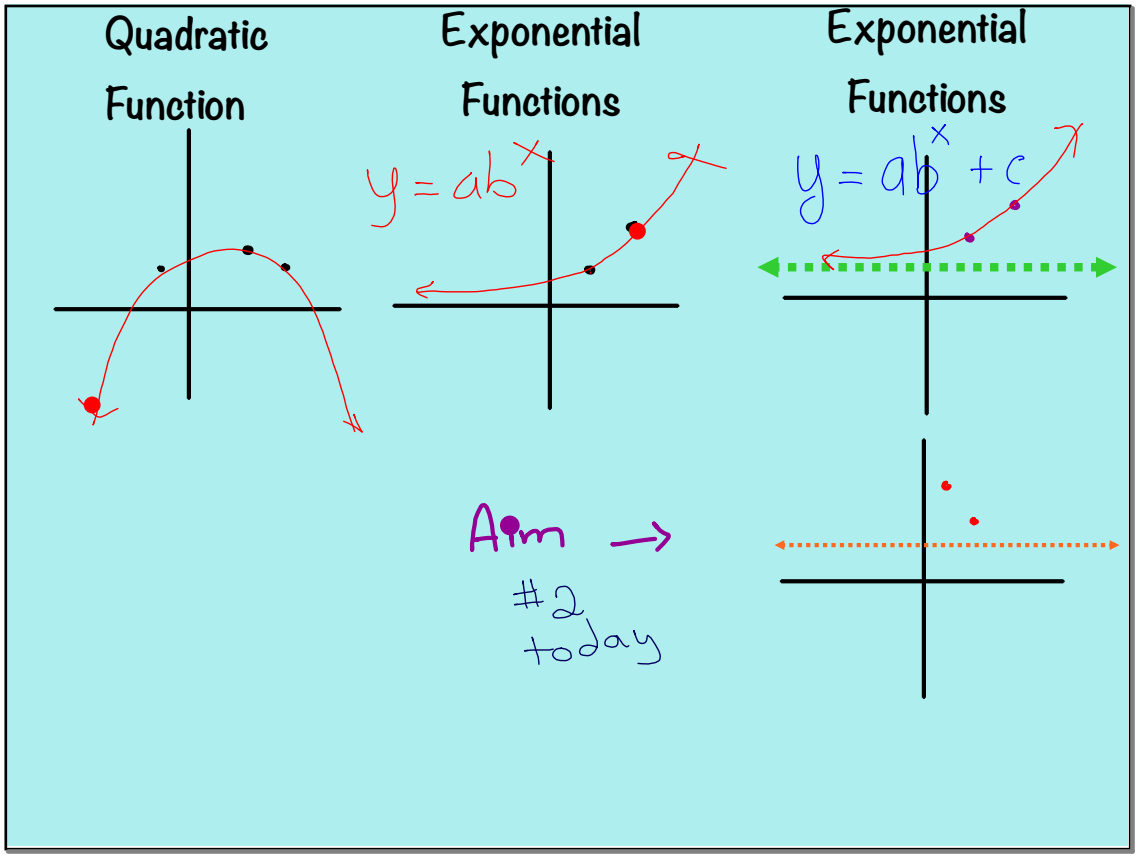
$x = \sqrt{24}$

$\log_2(-\sqrt{24})$

$\log_2(1-x)$



B.B.



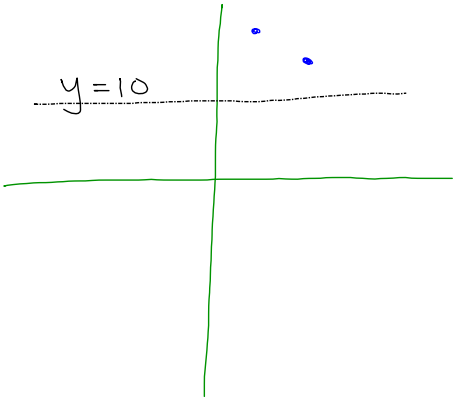
6-125

Determine an exponential equation whose asymptote is not $y = 0$

(3, 12.5)

(4, 11.25)

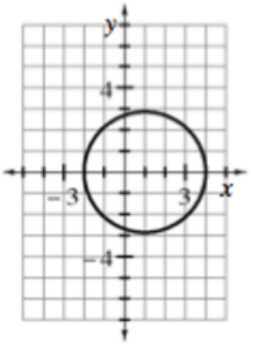
$y = ab^x$ ~~$y = ab^x$~~ $y = ab^x + c$



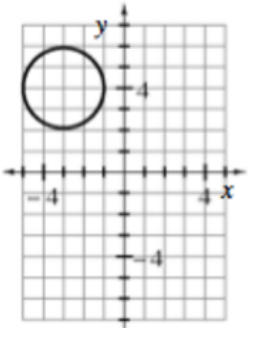
Assignment

Worksheet 6.2.3

134 a.



b.



6-135. Add or subtra

a. $\frac{x^2}{x-5} - \frac{25}{x-5}$

c. $\frac{x^2}{x-y} - \frac{2xy-y^2}{x-y}$

6-136. Find the inverse of each of the functions below. V

a. $p(x) = 3(x^3 + 6)$