taken from Telescope from space

I. HW Help →

II. Pick up the Warm Up

some review from previous chapter content.

1. Calculate the the future value of an investment of $5000 for 10 years if a bank pays interest monthly and assume the annual interest rate is 6.5%.

FV = $5000\left(1+\frac{.065}{12}\right)^{(12\cdot 10)} \approx \$9,560.92$

Repeat the calculation if you left the money for 20 years instead.

FV = $5000\left(1+\frac{.065}{12}\right)^{12\cdot 20} \approx \$18,282.23$

2. Practice your fluency with logarithms *(no calculators)* by calculating each expressio supporting exponential statement.

$\log_7 49 =$ 2

because: $7^2 = 49$

$\log_{49} \_\_ = \frac{1}{2}$

because: $49^{\frac{1}{2}} = 7$

$\sqrt{49}$

$\log_{10} 0.1 =$ -1

because: $10^m = 0.1$

$10^m = \frac{1}{10^1}$

$10^m = 10^{-1}$

Circle your answers.

$x = \log_3 8$

$3^x = 8$

$\log_{10} x = 4$

$10^4 = x$

$m = e^t$

$t = \log_e(m)$

$\frac{m}{4} = \frac{4e^t}{4}$

$\frac{m}{4} = e^t$

base

$t = \log_e\left(\frac{m}{4}\right)$

$n + 1 = \log_6 50$

exponent base

$6^{n+1} = 50$

exponent

base $\frac{1}{2}^n = \frac{1}{8}$

$n = \log_{\frac{1}{2}}\left(\frac{1}{8}\right)$

4. Find the inverse equation, in "y=" form, of the following function. Use proper notation ~~show~~ proper detail.

$f(x) = 3^x$

$y = 3^x$ inverse $x = 3^y$

$y = \log_3(x)$

$f^{-1}(x) = \log_3(x)$

5. Find the inverse, in "y=" form, of the following function. Use *the test).*

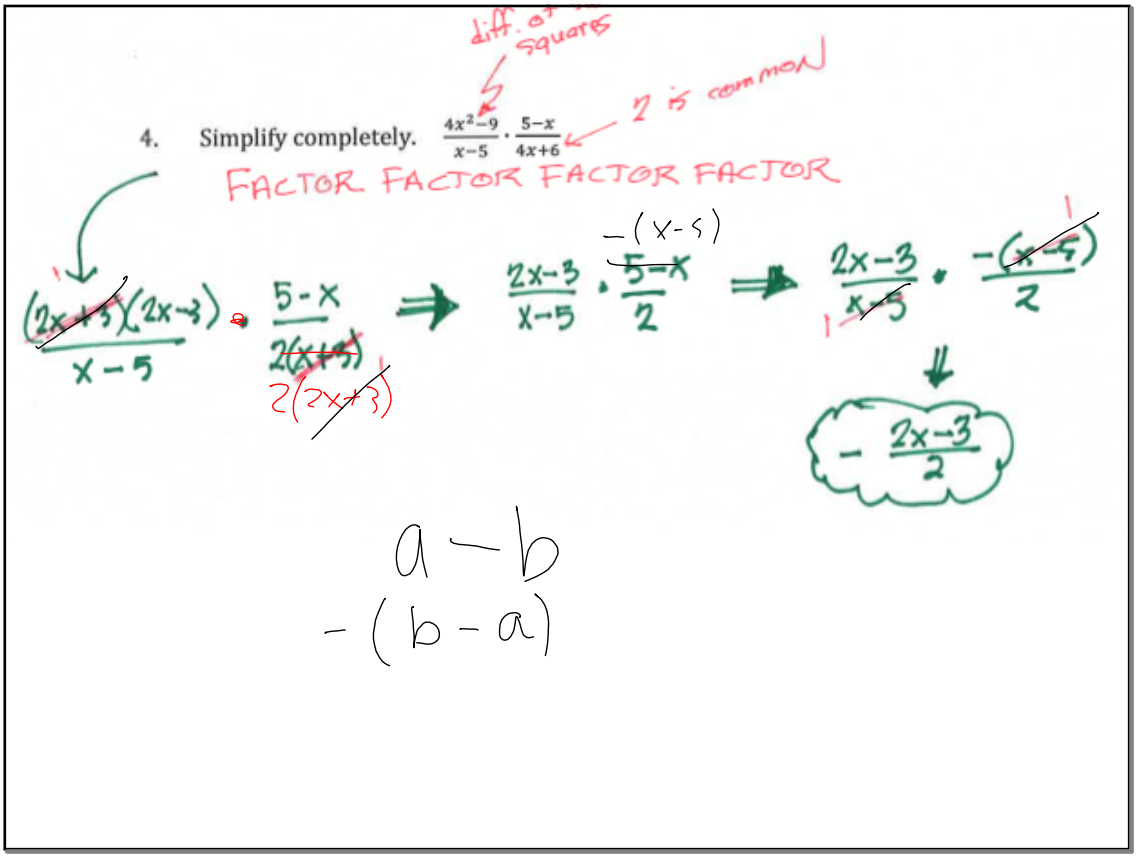
$y = (3)2^x + 10$

$x = 3 \cdot 2^y + 10$

$x - 10 = 3 \cdot 2^y$

$\frac{x-10}{3} = 2^y$

$y = \log_2\left(\frac{x-10}{3}\right)$



Sketching of Parent Functions
Blending in what you already knew with what you know now.

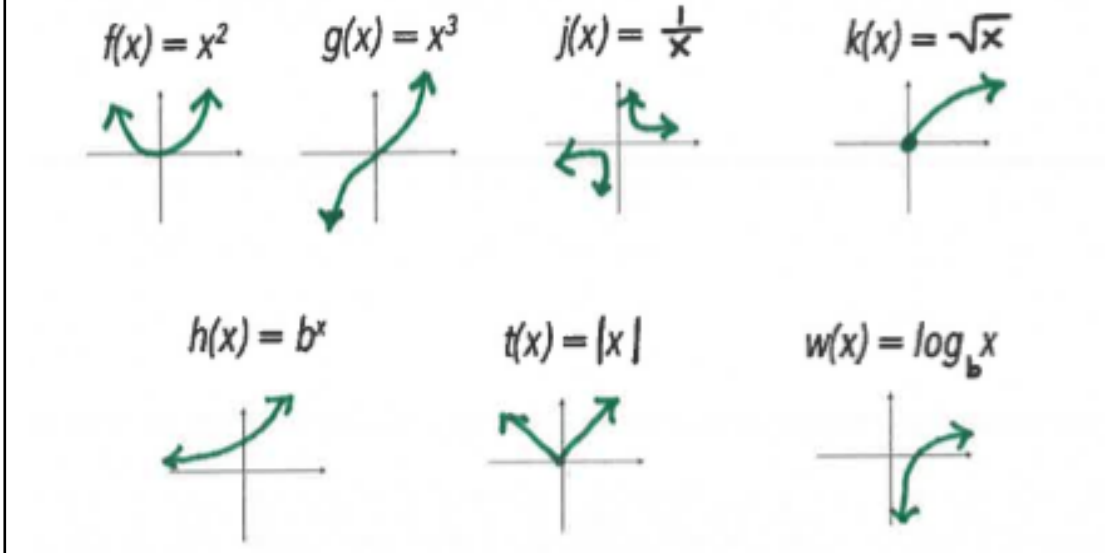
Without a GDC, sketch the following:

$f(x) = x^2$ $g(x) = x^3$

$j(x) = \frac{1}{x}$ $k(x) = \sqrt{x}$ $h(x) = b^x$

$t(x) = |x|$ $w(x) = \log_b x$

Use the bottom of the warm up



Check HW

a) $\frac{y}{b^x} = \frac{a \cdot b^x}{b^x}$

$a = \frac{y}{b^x}$

b) $\frac{y}{a} = \frac{a \cdot b^x}{a}$

$\frac{y}{a} = b^x$

$\sqrt[x]{b^x} = \sqrt[x]{\frac{y}{a}}$

$\frac{y}{a} = b^2$

$b = \sqrt[x]{\frac{y}{a}}$

85 If $X = 7^y$ how is it written in $y =$ form

$y = \log_7(x)$

86 Solve $n^3 = 49$

$\sqrt[3]{\quad}$ $\sqrt[3]{\quad}$

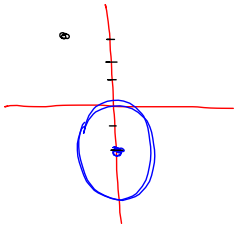
$n = \sqrt[3]{49}$

≈ 3.66

87 $x^2 + y^2 = r^2$

$x^2 + (y+2)^2 = (r^2)$ → center is $(0, -2)$

Transform 2 left
5 up
radius doubled



$(x)^2 + (y+2)^2 = (2r)^2$

91

(b) $x^2y^2 - 81z^2$

$(\quad)^2 - (\quad)^2 = (\quad - \quad)(\quad + \quad)$

91 (a) $x^2 + 8x$ $\quad x(x+8)$

(b) $x^2y^2 - 81z^2$ $\quad (xy+9z)(xy-9z)$

$(xy)^2 \quad (9z)^2$

(c) $2x^2 + 14x - 16$ $\quad 2(x+8)(x-1)$

$2(x^2 - 7x - 8)$

(d) $3x^2 - 11x - 4$ $\quad (3x+1)(x-4)$

97 (a) $\log_x(25) = 1$ $x = 25$

(b) $x = \log_3(9)$ $x = 2$

(c) $3 = \log_7(x)$ $x = 343$

(d) $\log_3(x) = \frac{1}{2}$ $x = \sqrt{3}$

(e) $3 = \log_x(27)$ $x = 3$

(f) $\log_{10}(10000) = x$ $x = 4$

92 b $\frac{1}{x+2}$

92d $\frac{4x+16}{x(x+2)}$

103

a. $y = ab^x$

$a = \frac{y}{b^x}$

b. $y = ab^x$

$\frac{y}{a} = b^x$

$\sqrt[x]{\quad}$ $\sqrt[x]{\quad}$

$b = \sqrt[x]{\frac{y}{a}}$

92d $\frac{4x+16}{x^2+2x}$

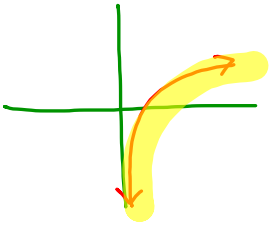
What You Should Know

The Log Function

- Features of Log Graphs in the form $f(x) = \log_b x$

$\log_2(-0.7)$

① Their appearance



Domain

Range

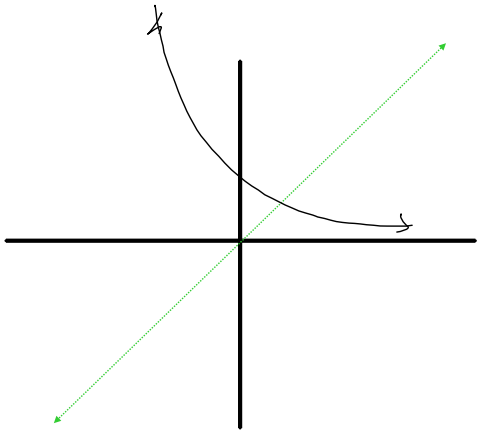
② Log functions are defined only when bases are $0 < b < 1$ or $b > 1$

$x = b^y$ $\quad y = \log_b(x)$

$x = 1^y$

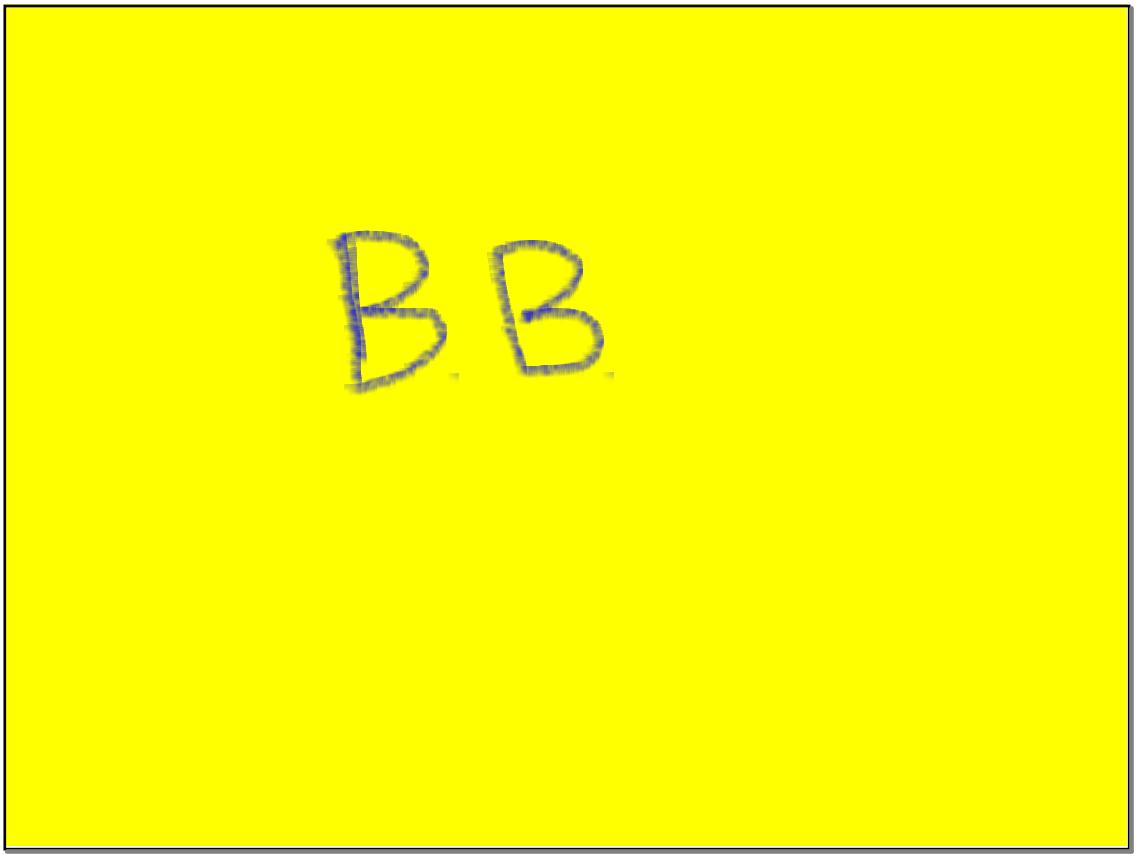
$y = 1^x$

$y = \left(\frac{3}{4}\right)^x$ $y = \log_{\frac{3}{4}}(x)$



(3) Their graphs have a single vertical asymptote (equation: $x=0$)

(4) The x-intercept is $(1,0)$



- Tomorrow....Turn in your homework packet in the white box
- Turn in your textbook (Volume 1) either today or tomorrow before period 1.

Rules for Tests

- No bathroom trips during test. after your test is turned in maybe.....
- Hats backward, no hoods
- Calculator covers put away/ No writing on GDC's
- If you are going to use the notes option, you have to have them out before you look at the test.
- You can use electronic devices after your test is turned in.

To Prepare

Review all in-class worksheets, Notes and Warm Ups

Be able to do most HW problems

Closure Assignment will review some of the skills and concepts

You can use your GDC. I will not tell you how to use it during the test unless there is some unusual sitution.

Be responsible and either have working batteries or get it charged ahead of time.

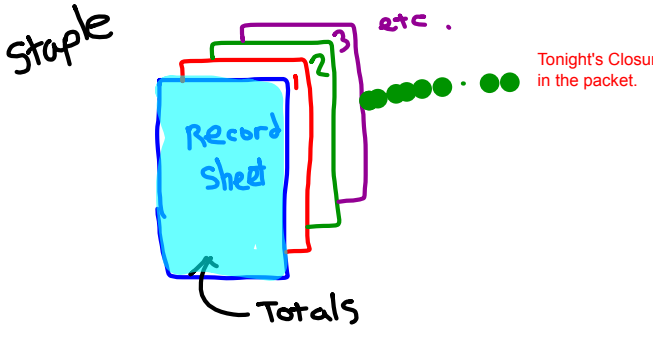
GDC

Should be able to draw the inverse of a function on your GDC

Turning in HW

All assignments that you've done get turned into me, then I hand you the test.

15% penalty per day if packet is late



Tonight's Closure assignment will be the last in the packet.

Closure Assignment

Page.... 250.. CL5-....126-131, 133-135

Will be added to the HW for tomorrow.

131a $\frac{5x}{x+3} + \frac{3+x}{x^2-9}$ mistake should be a −

on 130b.... use graphing methods to get an approx answer.