Download this PDF to your computer and go to
www.livescribe.com/player
On iOS, open the PDF in Livescribe+.

Mon 11/27

✓

Final Exam for the 11:30 Class is Wednesday, December 13th, 10:00a - 12:30

Finish § 6.3 | All of 6.4

Useful Tool

" $\log_{\blacksquare} \blacksquare = \blacksquare \longleftrightarrow \blacksquare^{\blacksquare} = \blacksquare$ "

Or $\log_a b = c \longleftrightarrow a^c = b$

$\log_a b^3 = c_3$ $\quad a^c = b$

Go around $1^2 \Rightarrow 3$

(this doesn't mean $1^2 = 3$, but the order of the elements :)

For "Graphing in MML" see Lecture Notes pg 95

MML SP Problem 6.3.55

Use transformations to graph the function

$$f(x) = 3 \cdot \left(\frac{1}{4}\right)^{x+2}$$

Vertical Stretch: 3

Horizontal Stretch:

Vertical shift:

Horizontal Shift: Left 2

Reflect over x-axis?

Reflect over y-axis?

Base: $\frac{1}{4}$

11.27.2017 11:29a MW Coll. Alg. Sections 6.3 (End) and 6.4 (All) 16m 10s
6.3 (End) and 6.4 (All)

livescribe

Mon 11/27

✓

Final Exam for the 11:30 Class is
Wednesday, December 13th, 10:00a - 12:30
Finish § 6.3 | All of 6.4

Useful Tool

"$\log_{\blacksquare}\bullet = \blacksquare \longleftrightarrow \blacksquare^{\blacksquare} = \bullet$"

Or $\log_a b = c \longleftrightarrow a^c = b$

$\log_a b^3 = c$, $a^c = b$

(go around $1^3 = 3$

(this doesn't mean $1^2 = 3$, but the order of the elements !!)

For "Graphing in MML" see Lecture Notes pg 95

MML Sp Problem 6.3.55

Use transformations to graph the function

$$f(x) = 3 \cdot \left(\frac{1}{4}\right)^{x+2}$$

Vertical Stretch: 3

Horizontal Stretch:

Vertical Shift:

Horizontal Shift: Left 2

Reflect over x-axis?

Reflect over y-axis?

Base: $\frac{1}{4}$

MML SP Problem 6.3.55

$g(x) = 1 + 5^{x-1}$

Vertical Stretch:

Horizontal Stretch?

Vertical shift: Up 1

Horizontal Shift: Right 1

Reflect over x?

Reflect over y?

Base? 5

MML SP Problem 6.3.59

$f(x) = -14 \cdot e^{-x}$

$f(x) = -1 \cdot e^{-x} - 14$

V. Stretch:

V. Shift: Down 14

Reflect over x? ✓ (Yes)

H. Stretch:

H. Shift:

Reflect over y? ✓ (Yes)

Base: e

Solving Exponential Equation

$(x^m)^n = x^{m \cdot n}$

$\square^{\square} = \square^{\square}$

For $a > 0, a \neq 1$ $a^u = a^v$, then $u = v$

MML SP p 6.3.73

$16^{-x+30} = 32^x$

$(2^4)^{-x+30} = (2^5)^x$

$4 \cdot (-x + 30) = 5 \cdot x$

$-4x + 144 = 5x$

Stop

6.3.71

$2^{x^3} = 32^x$

$(2)^{x^3} = (2^5)^x$

$2^{x^3} = 2^{5x}$

$x^3 = 5x$

0.4 "EGOB" Problem

Exponent Goes on Base

EGOB

(6.4.1) Exp

What is $EGOB_5\ 25$

What is the Exponent that goes on base 5 to make 25?

2

log

6.4.2

What is the $EGOB_3\ \frac{1}{9}$?

$3^? = \frac{1}{9}$ -2

log

logs are EGOB's!

$\log_5 25 = 2$ $\log_3 \frac{1}{9} = -2$

MML SP P9

$16 = 4^2$ to log form

$4^2 = 16$ $\log_4 16 = 2$

MML SP P13

$\log_3 \left(\frac{1}{9}\right) = -2$ $3^{-2} = \frac{1}{9}$

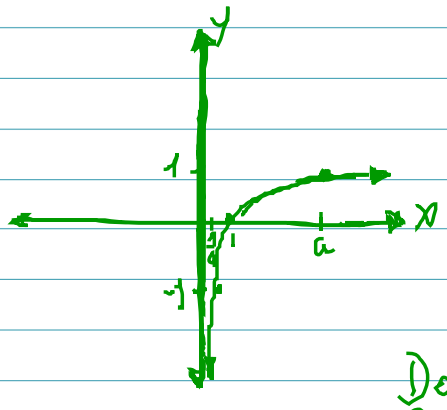
Determine the Domain of a logarithmic Function

1. Replace $f(x)$ with y
2. Turn all x's into y's and y's into x's
3. Solve for y
4. Replace y with $f^{-1}(x)$

Graph Log Functions

$\frac{1}{a}$	-1
1	0
a	1

6 & 3 Graph $f(x) = \log_a x$ + Domain and Range



$(\frac{1}{a}, -1)$
$(1, 0)$
$(a, 1)$

Domain $(0, \infty)$
Range $(-\infty, \infty)$

You can only take the log of a positive, real numbers $(0, \infty)$

$\log_{10} x$ | "Base log"

$\log_e x = \ln(x)$ | "Natural Log"

MML SP #26

Find the Domain of $f(x)$ in $\frac{1}{x-5}$ we want this to be positive $(5, \infty)$

Step 4. Already taken care of

Domain = $(5, \infty)$

MML SP P 50

$\log_x 4 = 2$

$x^2 = 4$

$x = 2, -2$

$x = 2$

MML SP P 59

$4e^{x+1} = 5$

$e^{x+1} = \frac{5}{4}$

write it with a log

$\log_e \frac{5}{4} = x+1$

$\ln\left(\frac{5}{4}\right) = x+1$

$\ln\left(\frac{5}{4}\right) - 1 = x$

$x = -0.7768\ldots$