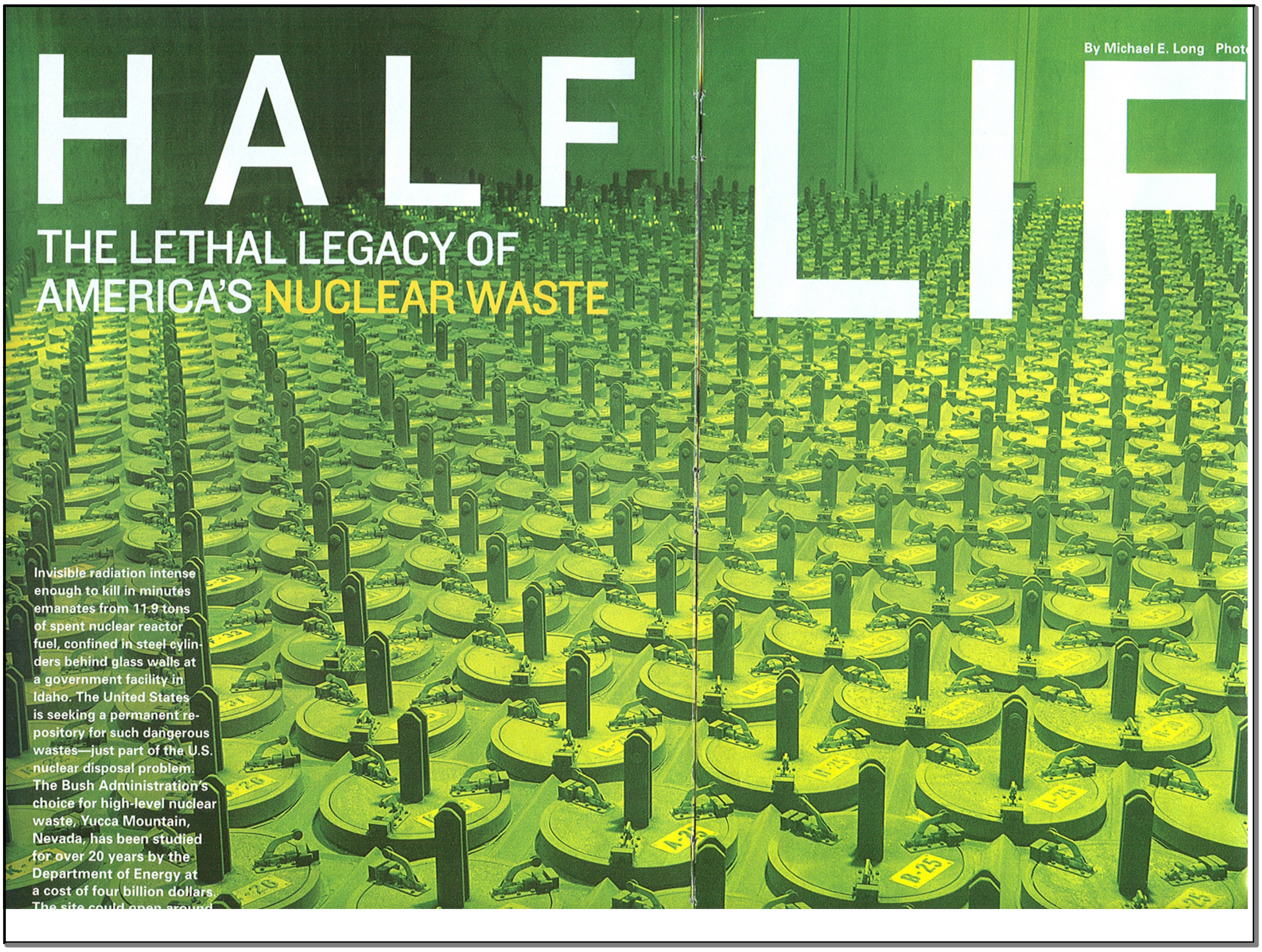


By Michael E. Long Phot

HALF LIF

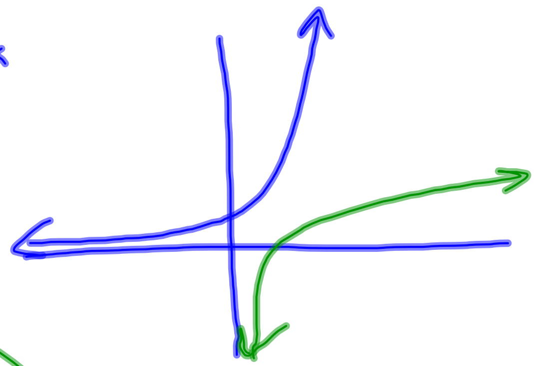
THE LETHAL LEGACY OF AMERICA'S NUCLEAR WASTE

Invisible radiation intense enough to kill in minutes emanates from 11.9 tons of spent nuclear reactor fuel, confined in steel cylinders behind glass walls at a government facility in Idaho. The United States is seeking a permanent repository for such dangerous wastes—just part of the U.S. nuclear disposal problem. The Bush Administration's choice for high-level nuclear waste, Yucca Mountain, Nevada, has been studied for over 20 years by the Department of Energy at a cost of four billion dollars. The site could open around

3-1 - 3-2 Exponential and Logarithmic Functions

$f(x) = a^x$

$y = 5^x$



$f(x) = \log_a x$

$y = \log_a x \longrightarrow a^y = x$

Ex. 1 Convert the following logarithmic equations to exponential equations, and convert the exponential equations to logarithmic equations.

$y = \log_2 16$ $\quad$ $5 = \log_x 32$ $\quad$ $3 = \log_4 x$

$2^y = 16$ $\quad$ $x^5 = 32$ $\quad$ $4^3 = x$

$6^3 = x$ $\quad$ $x^4 = 625$ $\quad$ $3^x = 81$

$3 = \log_6 x$ $\quad$ $4 = \log_x 625$ $\quad$ $x = \log_3 81$

Ex. 2 Graph

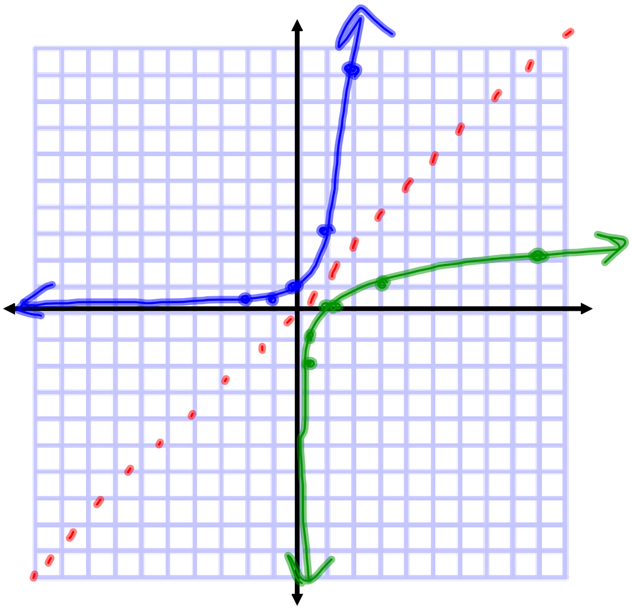
$y = 3^x$

x	y
-2	1/9
-1	1/3
0	1
1	3
2	9

$y = \log_3 x$

$3^y = x$

x	y
1/9	-2
1/3	-1
1	0
3	1



Calculus idea:

$$f(x) = e^x$$

★ $e \approx 2.718281828459045....$

\# of times compounded per year

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

final amount principle rate time (years)

$$A = Pe^{rt}$$

compounded continuously

Homework

p.193
\#1-28, 53-58 1st two per section

p.203
\#1-43, 63-69 odds