BOARD NOTES

11 FEBRUARY 2020

2A.5 (D) solve exponential equations of the form $y = ab^x$ where a is a nonzero real number and b is greater than zero and not equal to one and single logarithmic equations having real solutions;

2A.5 (E) determine the reasonableness of a solution to a logarithmic equation.

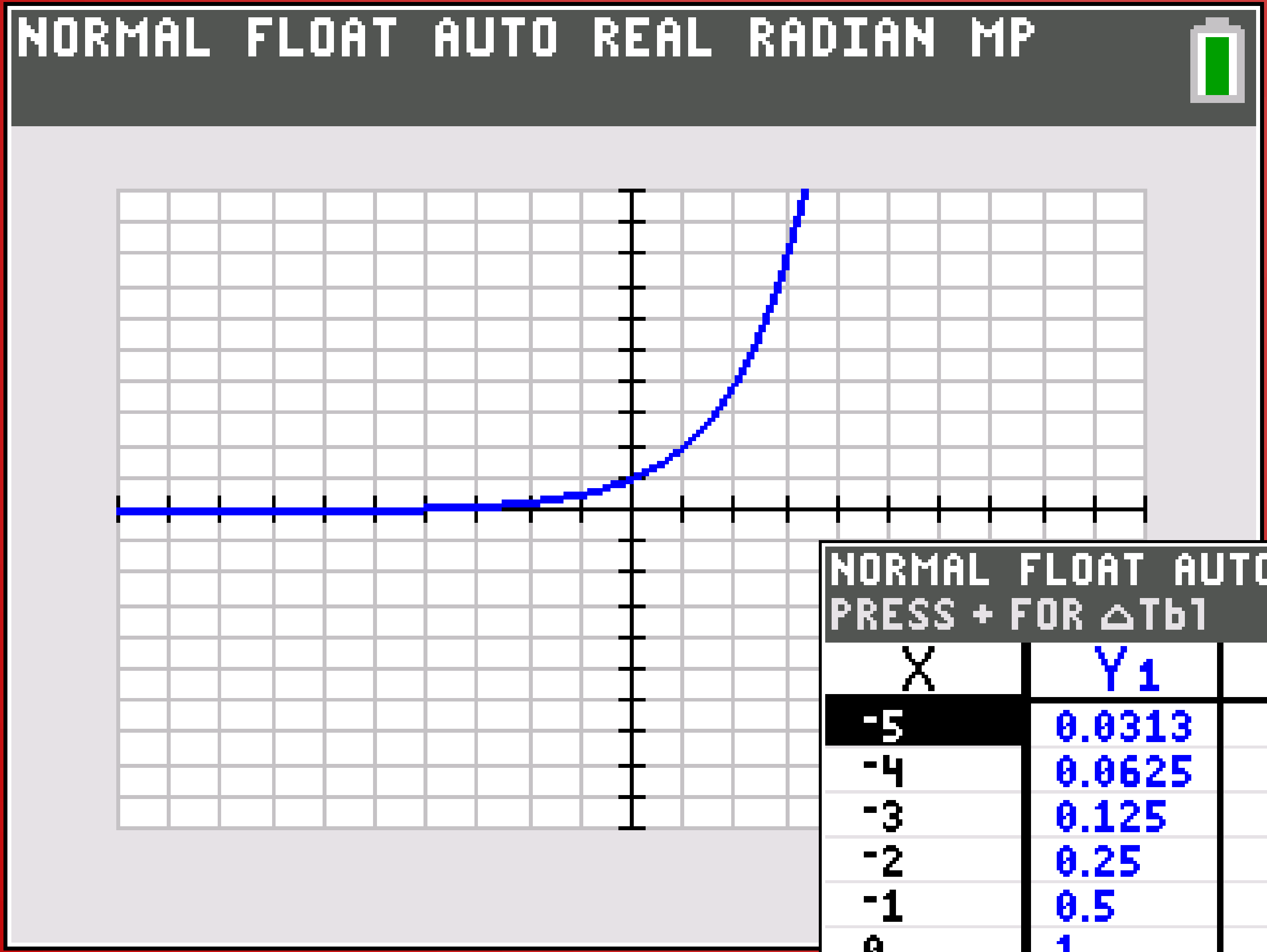
We will be able to solve exponential equations.

WHAT WE NEED:

- TI-84
- Laws of Exponents

I WILL BE ABLE TO COMPLETE MY HOMEWORK GIVEN THE

- Equation

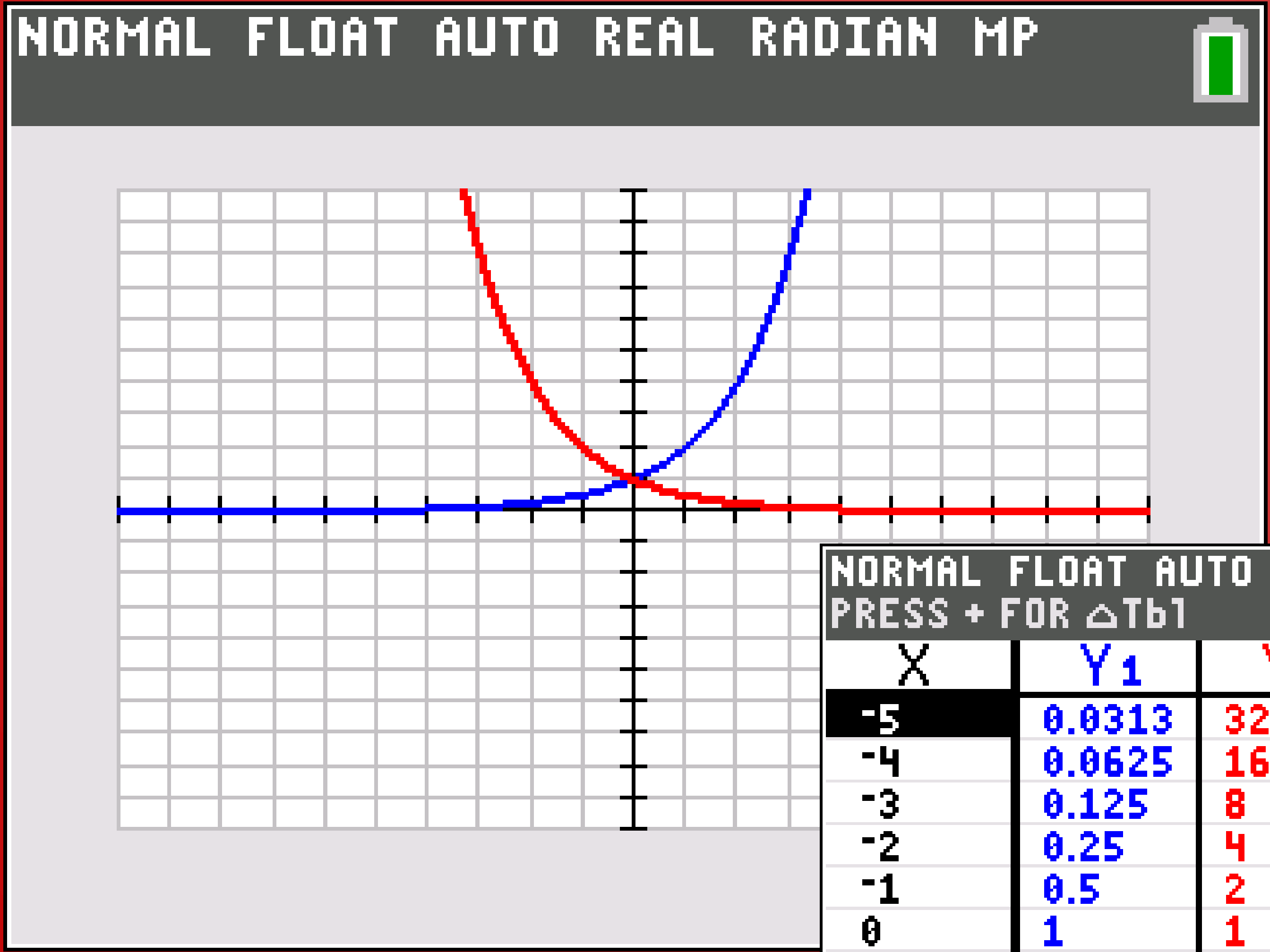


NORMAL FLOAT AUTO REAL RADIAN MP

PRESS + FOR △Tbl

X	Y_1
-5	0.0313
-4	0.0625
-3	0.125
-2	0.25
-1	0.5
0	1
1	2
2	4
3	8
4	16
5	32

X= -5



NORMAL FLOAT AUTO REAL RADIAN MP
PRESS + FOR △Tbl

X	Y1	Y2
-5	0.0313	32
-4	0.0625	16
-3	0.125	8
-2	0.25	4
-1	0.5	2
0	1	1
1	2	$\frac{1}{2}$
2	4	$\frac{1}{4}$

X= -5

$$\frac{6x}{5y}\cdot\frac{y^2x^{-2}}{x^3}$$

$$=\frac{6}{5}\,x^{(1-2)-3}\,y^{2-1}$$

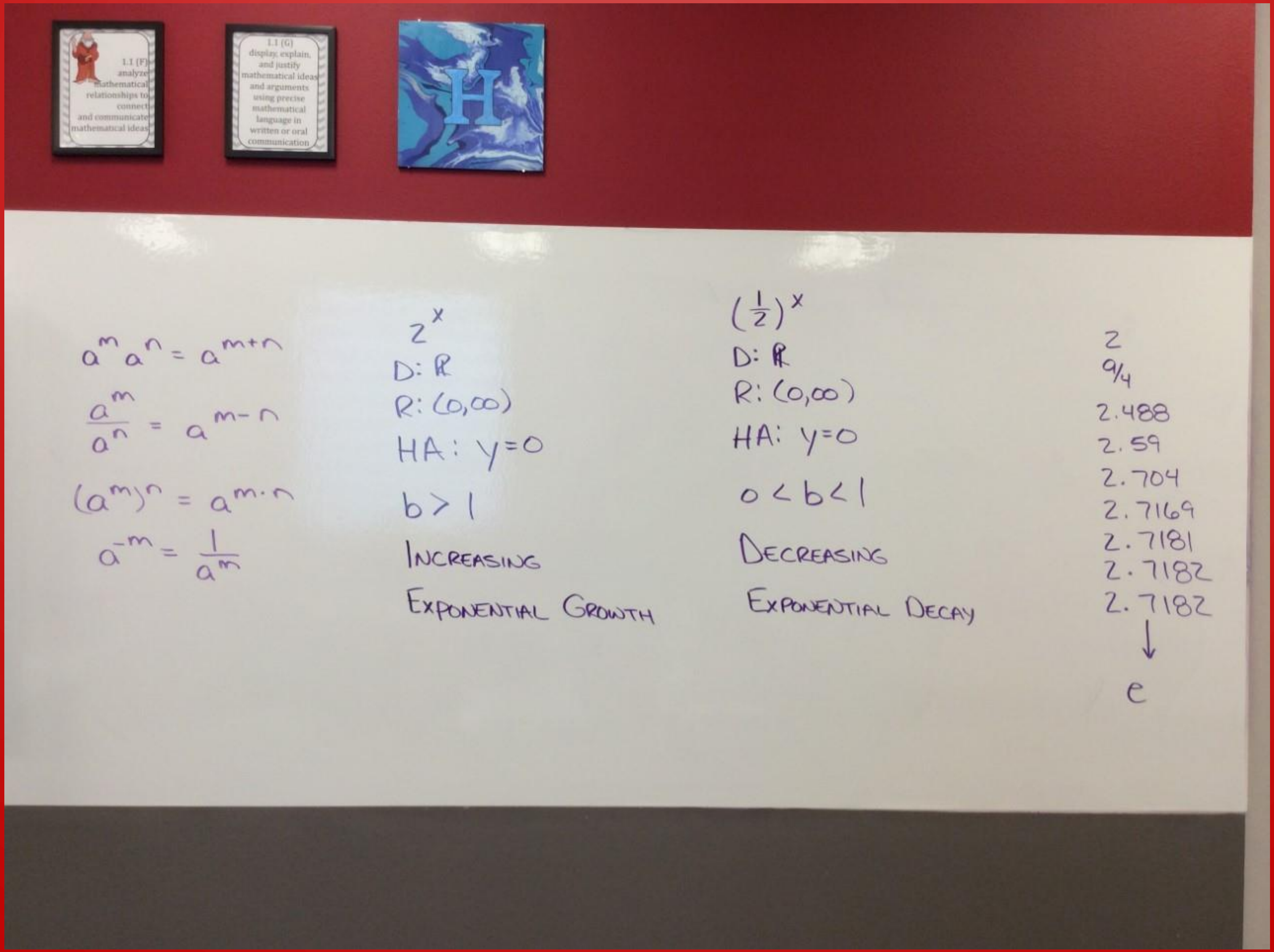
$$=\frac{6}{5}\,x^{-4}\,y$$

$$=\frac{6y}{5x^4}$$

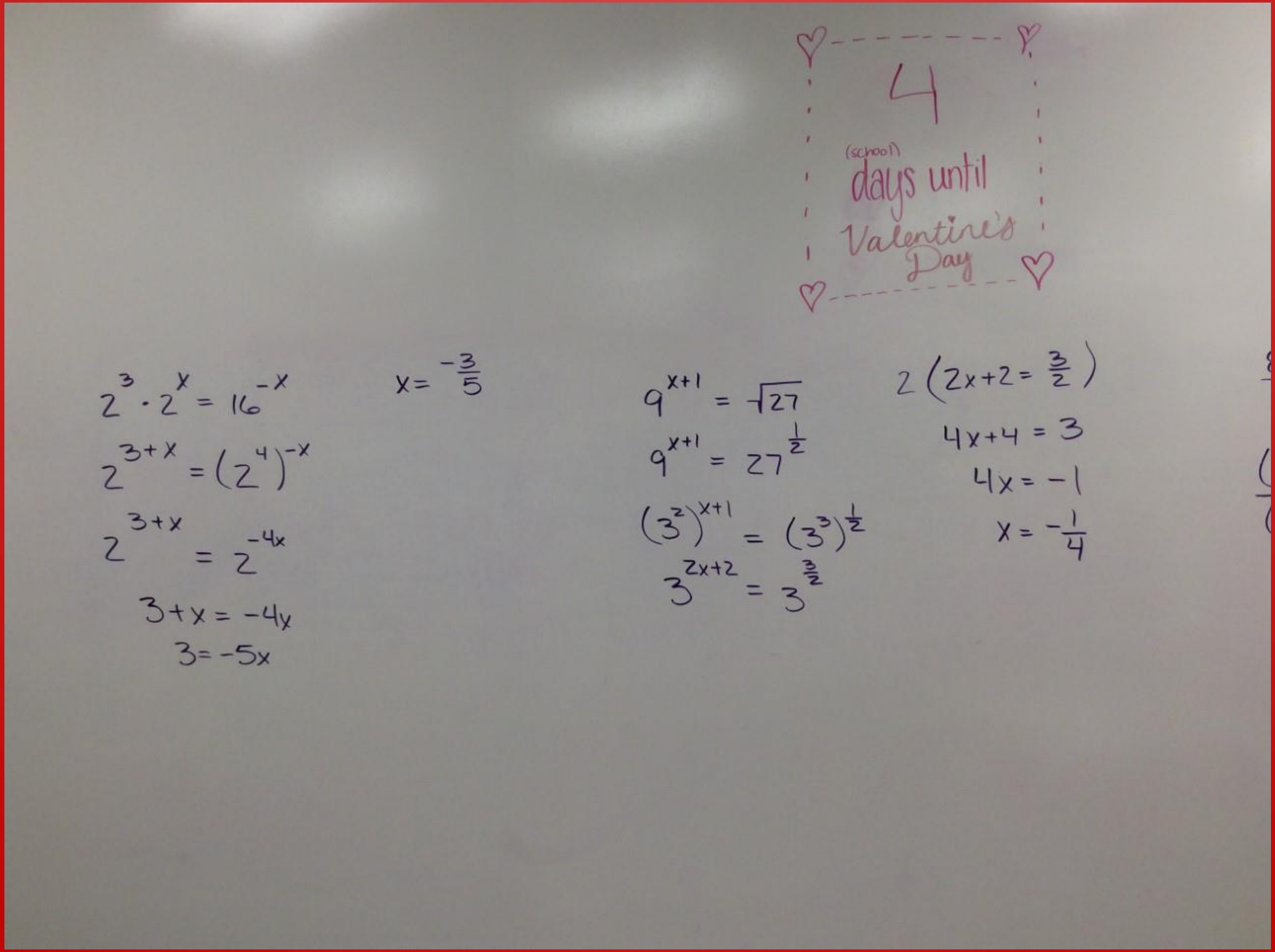
$$\frac{-12xy\cdot 21x^5y^2}{7x^4\cdot 4y}$$

$$=-9\,x^{(1+5)-4}\,y^{(1+2)-1}$$

$$=-9x^2y^2$$



1.1 (F) analyze mathematical relationships to connect and communicate mathematical ideas
1.1 (G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication
H
$a^m a^n = a^{m+n}$
$\frac{a^m}{a^n} = a^{m-n}$
$(a^m)^n = a^{m \cdot n}$
$a^{-m} = \frac{1}{a^m}$
2^x
D: $\mathbb{R}$
R: $(0,\infty)$
HA: $y=0$
$b>1$
INCREASING
EXPONENTIAL GROWTH
$\left(\frac{1}{2}\right)^x$
D: $\mathbb{R}$
R: $(0,\infty)$
HA: $y=0$
$0<b<1$
DECREASING
EXPONENTIAL DECAY
2
9/4
2.488
2.59
2.704
2.7169
2.7181
2.7182
2.7182
e


4
(school) days until Valentine's Day
$2^3 \cdot 2^x = 16^{-x}$
$2^{3+x} = (2^4)^{-x}$
$2^{3+x} = 2^{-4x}$
$3+x = -4x$
$3 = -5x$
$x = \frac{-3}{5}$
$9^{x+1} = \sqrt{27}$
$9^{x+1} = 27^{\frac{1}{2}}$
$(3^2)^{x+1} = (3^3)^{\frac{1}{2}}$
$3^{2x+2} = 3^{\frac{3}{2}}$
$2\left(2x+2 = \frac{3}{2}\right)$
$4x+4 = 3$
$4x = -1$
$x = -\frac{1}{4}$

4

on
ays until
lentine's
Day

$2(2x+2=\frac{3}{2})$

$4x+4=3$

$4x=-1$

$x=-\frac{1}{4}$

$\frac{8^{x^2}}{4^x}=2$

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

$\frac{2^{3x^2}}{2^{2x}}=2^1$

$2^{3x^2-2x}=2^1$

$3x^2-2x=1$

$3x^2-2x-1=0$

$(3x+1)(x-1)=0$

$x=-\frac{1}{3}, 1$

$(e^x)^2=e^{x^2}$

$e^{2x}=e^{x^2}$

$x^2-2x=0$

$x(x-2)$