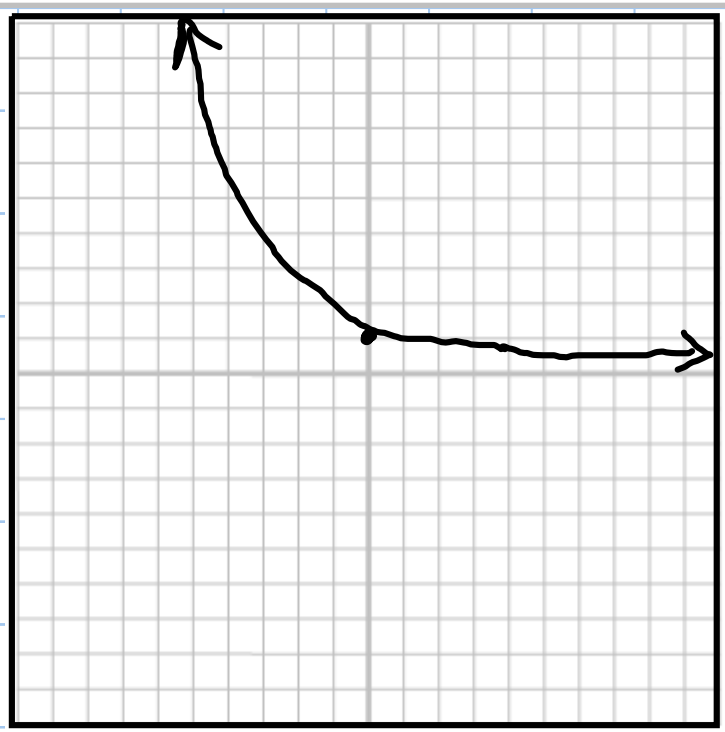
* CASE 4: $0 < a < 1$

$$f(x) = \left(\frac{1}{2}\right)^x$$

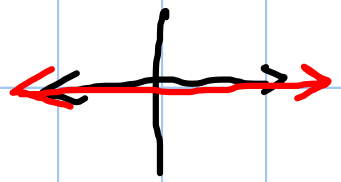


CASE 5: $a < 0$

$$f(x) = (-1)^x$$

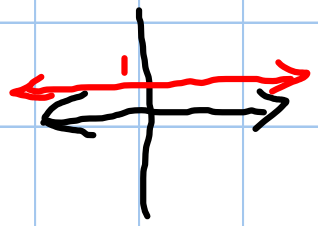
$f(x) = a^x$

CASE 1: $a = 0$



$f(x) = 0^x = 0$

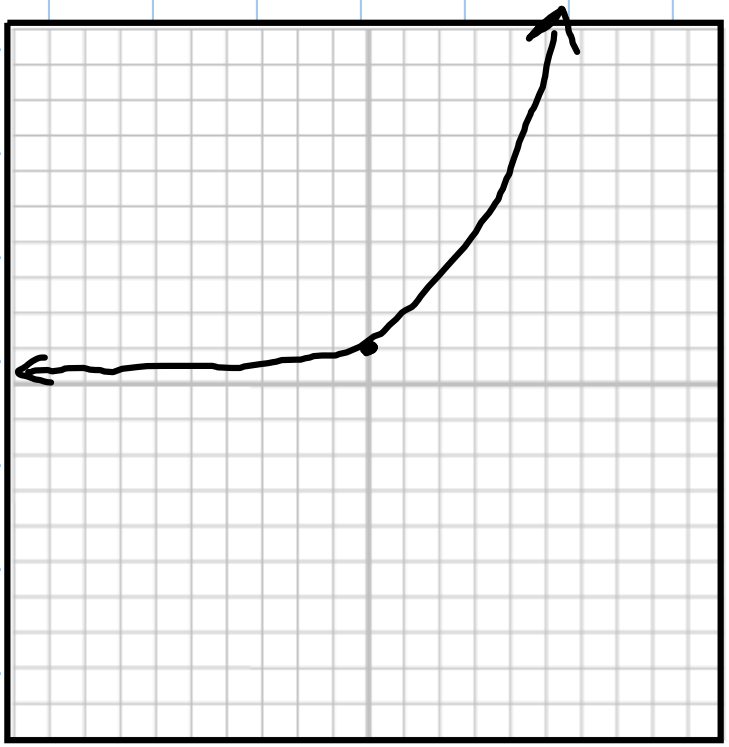
CASE 2: $a = 1$



$f(x) = 1^x = 1$

* CASE 3: $a > 1$

$f(x) = 2^x$



12.

$$\sqrt{x+6} - \sqrt{x-5} = 1$$

$$\sqrt{x+6} = 1 + \sqrt{x-5}$$

$$x+6 = 1 + 2\sqrt{x-5} + x - 5$$

$$x+6 = x - 4 + 2\sqrt{x-5}$$

$$10 = 2\sqrt{x-5}$$

$$5 = \sqrt{x-5}$$

$$25 = x-5$$

$$30 = x$$

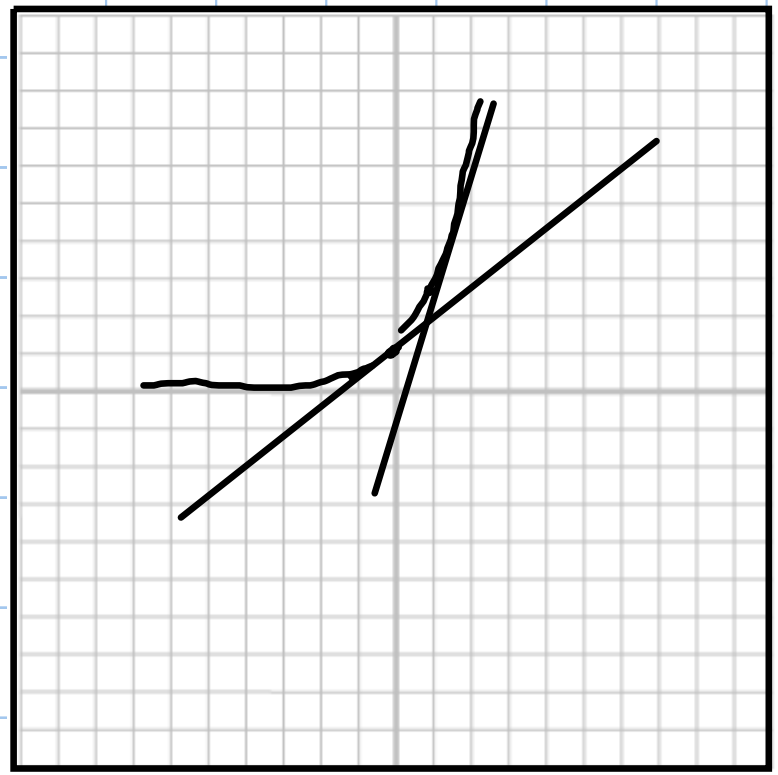
$$\sqrt{36} - \sqrt{25} \overset{?}{=} 1$$

$$6 - 5 = 1$$

$y = a^x$

$y = e^x$

slope = height



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

.06

$$A = Pe^{rt}$$

compounded continuously

$$A = 1000\, e^{.30}$$

$\$1349.86 =$

P. 337

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

P: principal

r: rate of int.

n: # times compounded per yr.

t: time invested (yrs.)

A = final money amount

$P = 1{,}000$

$r = 6\%$

$n =$ twice per yr.

$t = 5$ yrs.

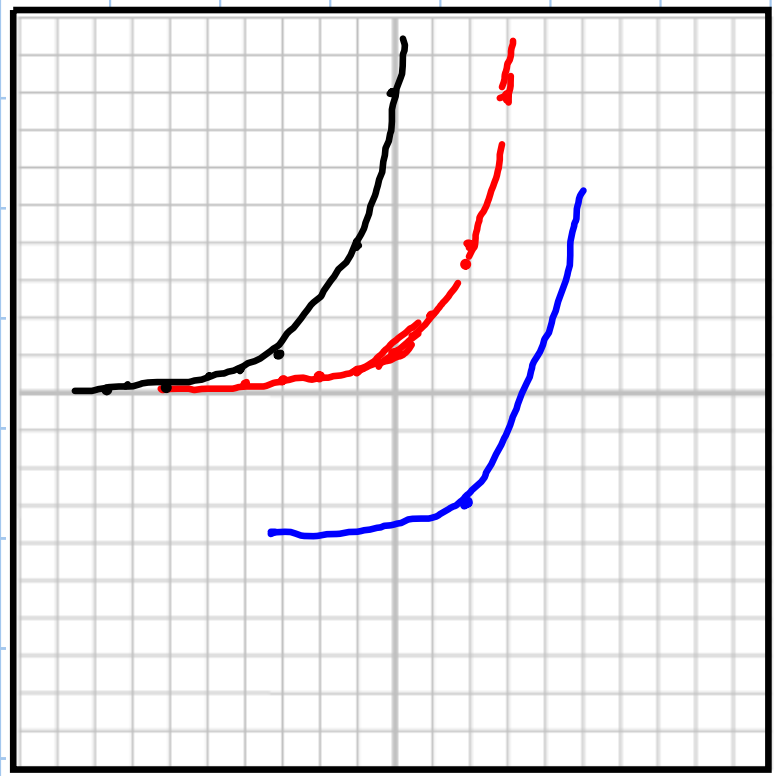
$$A = 1{,}000\left(1 + \frac{.06}{2}\right)^{10}$$

$$\$1{,}343.92 = 1{,}000\,(1.03)^{10}$$

$f(x) = 2^x$

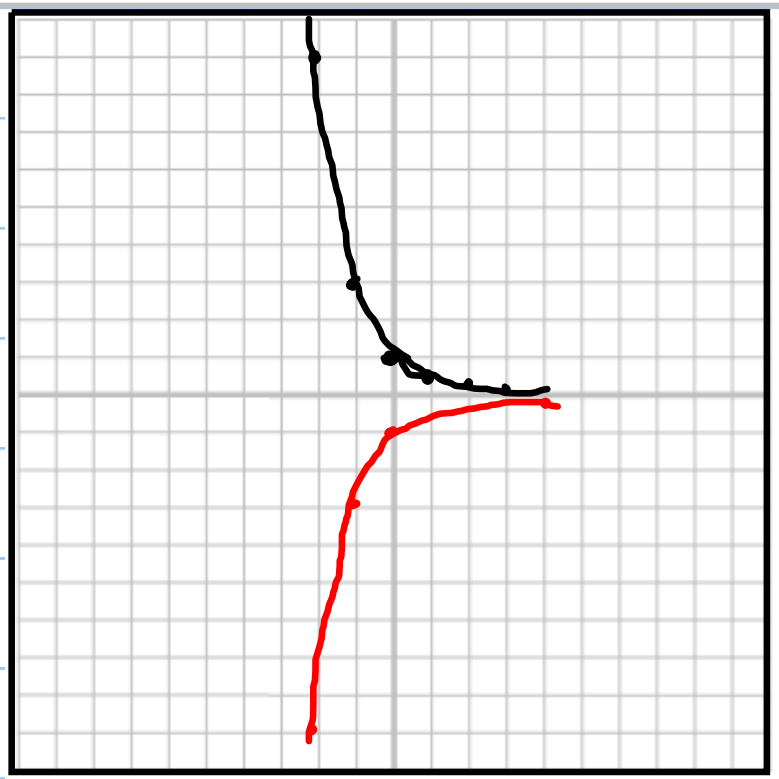
$f(x) = 2^{x+3}$

$f(x) = 2^{x-2} - 4$



$f(x) = 3^{-x}$

$f(x) = -3^{-x}$



#91. $A = 200e^{-.001t}$

$100 = 200e^{-.001t}$

$A = Pe^{rt}$ cont. comp. int. model

$A = A_0 e^{rt}$ decay

#90. $A = 1{,}000{,}000 \cdot e^{.06 \cdot t}$