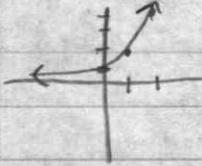


Exponentials
Graphing Functions w/ transformation

4/20/20

Ex 1.

$3 \cdot 2^{x-1} + 4$



$y = 2^x$
 $y = a^x$
base

$0 < a < 1$ or $a > 1$

$y = 3 \cdot 2^{x-1} + 4$

① $y = 2^x$

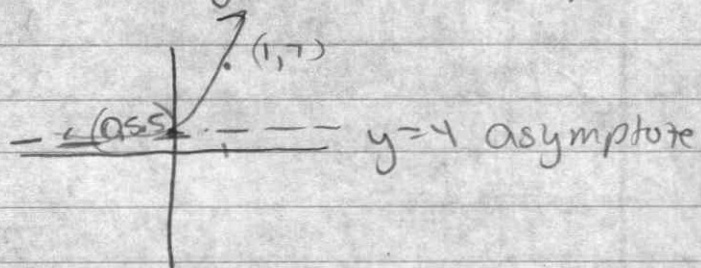
② $y = 2^{x-1}$ → shift right 1

③ $y = 3 \cdot 2^{x-1}$ → multiply y-values by 3

④ $y = 3 \cdot 2^{x-1} + 4$ → shift up 4 units

x	2^x	y
0	$2^0 = 1$	(0, 1)
1	$2^1 = 2$	(1, 2)
2	$2^2 = 4$	(2, 4)
3	$2^3 = 8$	(3, 8)
-1	$2^{-1} = .5$	(-1, .5)
-2	$2^{-2} = .25$	(-2, .25)

Asymptote $y = 0$



Ex 2.

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

1) $y = 3^x$

2) $y = 3^{-x}$ → reflect over y-axis

3) $y = -3^{-x}$ → reflect over x-axis

4) $y = -3^{-x} - 2$ → shift down 2 units

