

Transformed exponential function:

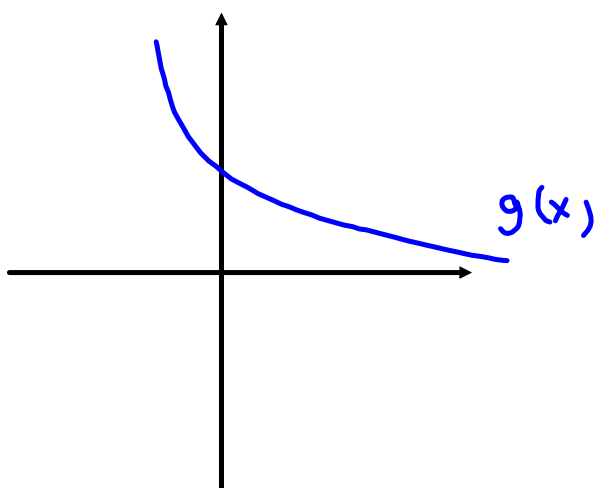
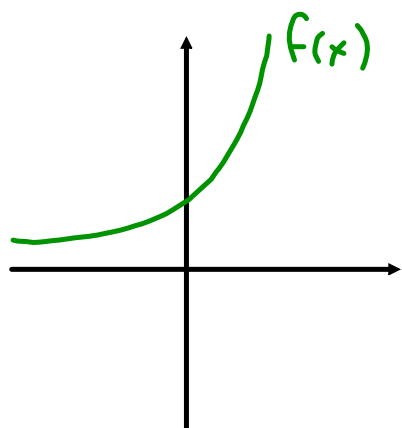
$$f(x) = a(c)^{b(x-h)} + k$$

Discover the role of the parameters.

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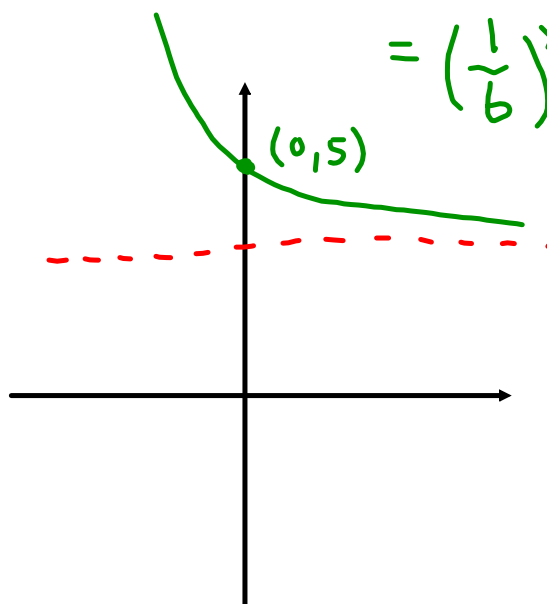
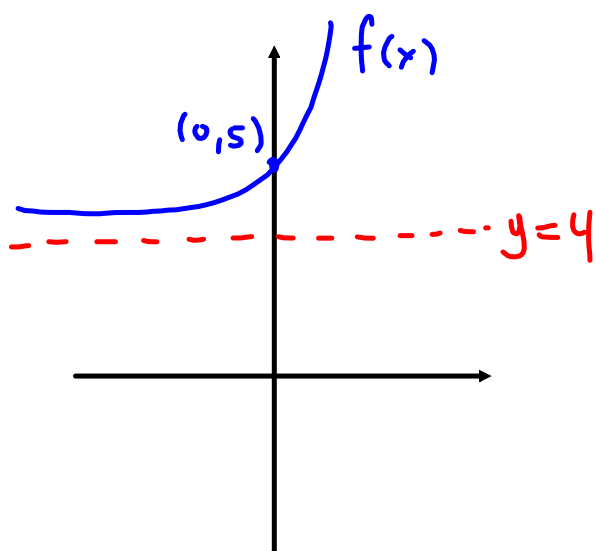
a) $f(x)=3^x$

$g(x)=(1/3)^x$

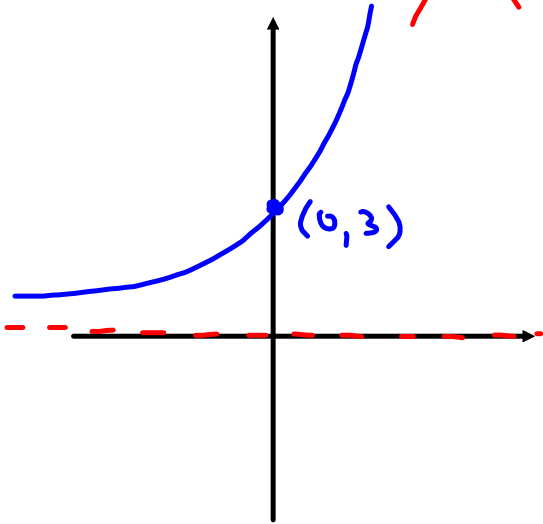


b) $f(x)=6^x+4$

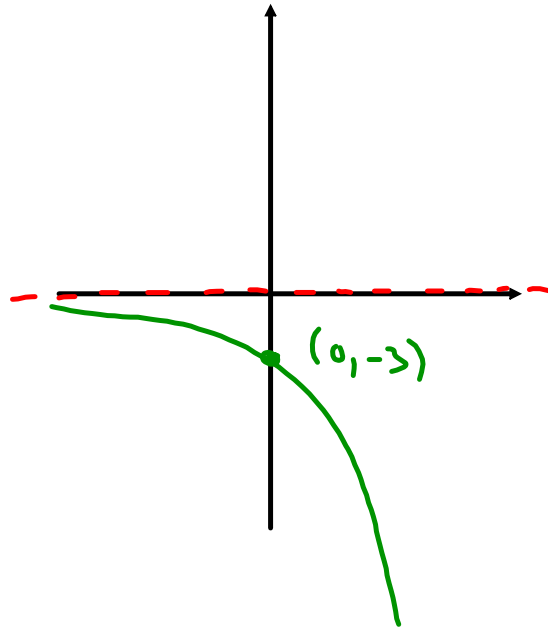
$g(x)=6^{-x}+4 = (6^{-1})^x + 4$
 $= (\frac{1}{6})^x + 4$



c) $f(x) = 3(2)^x = \cancel{6}^x$



$g(x) = -3(2)^x$

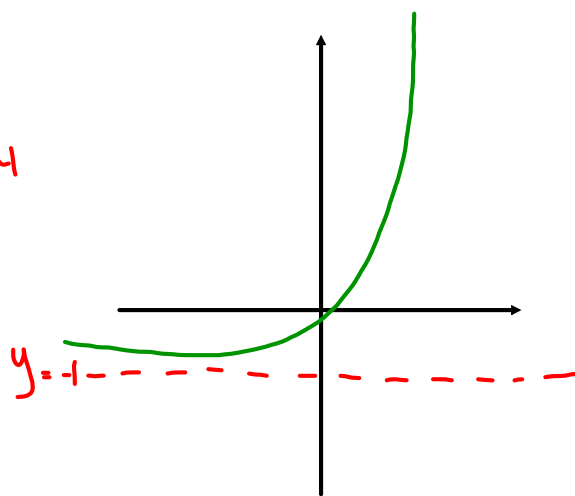
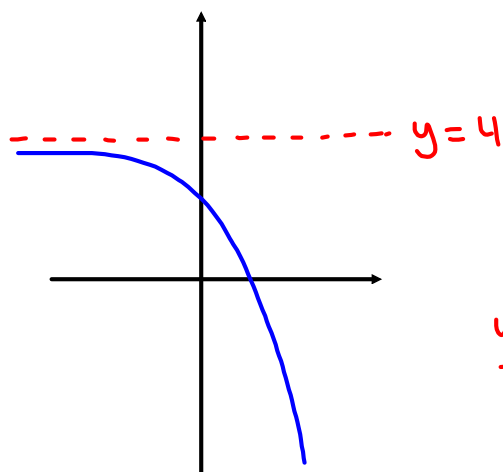


Sketch: k c b a

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$$f(x) = -2(4)^{3x-1} + 4$$

$$g(x) = (1/2)^{-x-1}$$



k is the horizontal asymptote

c and b show whether its growth vs

$$2^{2x} = (2^2)^x = 4^x \text{ growth} \quad \text{decay}$$

$$\left(\frac{1}{2}\right)^{-3x} = \left(\frac{1}{2^{-3}}\right)^x = 8^x \text{ growth}$$

a + function above H.A.

a - function below H.A.