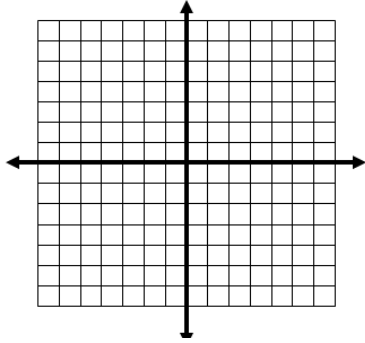


Extra Practice with Transformations of Exponential Functions

1. $f(x) = 2^x$
 $g(x) = 2^{x-3} - 2$



Transformations _____

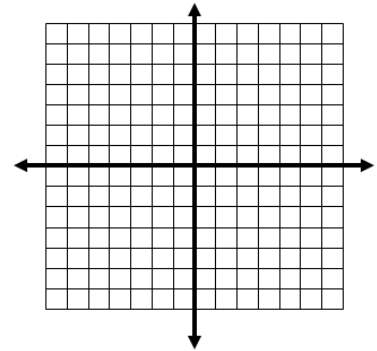
Domain _____

Range _____

Asymptote _____

y- intercept _____

2. $f(x) = 5^x$
 $g(x) = -5^x - 2$



Transformations _____

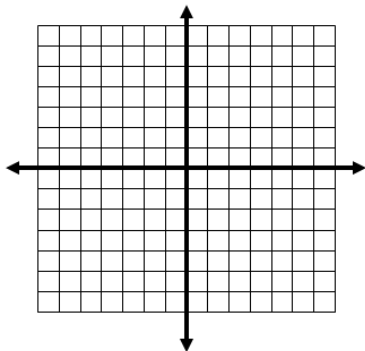
Domain _____

Range _____

Asymptote _____

y- intercept _____

3. $f(x) = 3^x$
 $g(x) = 3^{x+1} + 2$



Transformations _____

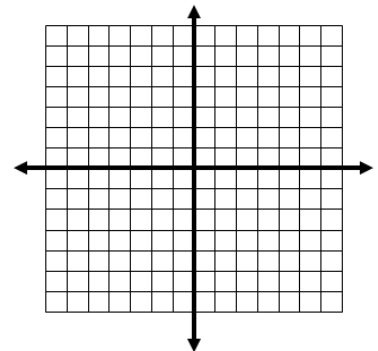
Domain _____

Range _____

Asymptote _____

y- intercept _____

4. $f(x) = \left(\frac{1}{2}\right)^x$
 $g(x) = -\left(\frac{1}{2}\right)^x - 5$



Transformations _____

Domain _____

Range _____

Asymptote _____

y- intercept _____

Given the parent function $f(x) = 3^x$, write an equation for $g(x)$ with the given transformations.

5. Reflection across the asymptote, shift down 6
6. Shift left 3, stretch by a scale factor of 2
7. Reflection over the x axis, shift right 4, shrink by a scale factor of $\frac{2}{3}$
8. Shift up 3, shift left 4, stretch by a scale factor of 8
9. Shift right 6, shift down 2, reflection over the asymptote
10. Shift right 2, reflection across the asymptote, shrink by a scale factor of $\frac{1}{2}$, shift down 1

11. Find the average rate of change over the interval $0 \leq x \leq 2$ for $f(x) = (2)^x + 1$. **Show work.**

12. Find the average rate of change over the interval $1 \leq x \leq 3$ for $h(x) = \left(\frac{1}{2}\right)^x + 3$. **Show work.**

13. **Circle** all that apply for the transformation of $f(x) = -2^{x+2} - 3$ from the parent graph of $f(x) = 2^x$.

Stretch Shrink Reflect over x-axis Shift up Shift Down Shift Right Shift Left

14. **Circle** all that apply for the transformation of $f(x) = 3^{x+2} + 1$ from the parent graph of $f(x) = 3^x$.

Stretch Shrink Reflect over x-axis Shift up Shift Down Shift Right Shift Left