

## 2.4 Exponential Function Manipulation

AP Precalculus

Name: \_\_\_\_\_

CA #2

Let  $f(x)$  be a function on which a transformation occurs. Let  $g(x)$  be a transformation of  $f$ . For each problem, name the transformation(s) of  $f$ .

1.  $f(x) = 81^x$  and  $g(x) = 9^x$

2.  $f(x) = 8^x$  and  $g(x) = \frac{f(x)}{8}$

3.  $f(x) = 6^x$  and  $g(x) = (f(x))^{-5}$

4.  $f(x) = 7^x$  and  $g(x) = f(x) \cdot 49$

5.  $f(x) = 6^x$  and  $g(x) = 36^x$

6.  $f(x) = 3^x$  and  $g(x) = \frac{f(x)}{9}$

7.  $f(x) = 8^x$  and  $g(x) = (f(x))^{-1}$

8.  $f(x) = 2^x$  and  $g(x) = f(x) \cdot 8$

9.  $f(x) = 3^x$  and  $g(x) = -\frac{f(x)}{3}$

Evaluate the function at the given input values.

10. Let  $h(x) = 8 \cdot 5^{x/2}$ . Find  $h(1)$

11. Let  $h(x) = 2 \cdot 9^{x/3}$ . Find  $h(2)$

12. Let  $h(x) = 6 \cdot 2^{x/7}$ . Find  $h(-2)$

13. Let  $h(x) = 3 \cdot 6^{x/4}$ . Find  $h(-1)$

Answers to 2.4 CA #2

1. Horizontal dilation	2. Shift right 1 unit.	3. Horizontal dilation and reflection across the $y$ -axis.	4. Shift left 2 units.
5. Horizontal dilation	6. Shift right 2 units.	7. Reflection across the $y$ -axis.	8. Shift left 3 units.
9. Reflection across the $x$ -axis and shift right 1.	10. $8\sqrt{5}$	11. $2\sqrt[3]{81}$	12. $\frac{6}{\sqrt[4]{4}}$
			13. $\frac{3}{\sqrt[4]{6}}$