2.4 Exponential Function Manipulation

AP Precalculus Name: _____ **CA #1**

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. $f(x) = 2^x$ and $g(x) = \frac{f(x)}{32}$

2. $f(x) = 5^x$ and $g(x) = f(x) \cdot 125$

3. $f(x) = 11^x$ and $g(x) = \big(f(x)\big)^{-1}$

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

5. $f(x) = 6^x$ and $g(x) = \big(f(x)\big)^{-4}$

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

7. $f(x) = 16^x$ and $g(x) = 2^x$

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

9. $f(x) = 3^x$ and $g(x) = \frac{f(x)}{27}$

Evaluate the function at the given input values.

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

11. Let $h(x) = 2 \cdot 3^{x/5}$. Find $h(2)$

12. Let $h(x) = 5 \cdot 4^{x/4}$. Find $h(-2)$

13. Let $h(x) = 6 \cdot 7^{x/3}$. Find $h(-1)$

Answers to 2.4 CA #1

1. Shift right 5 units.	2. Shift left 3 units.	3. Reflection across the y-axis.	4. Horizontal dilation
5. Horizontal dilation and reflection across the y-axis.	6. Shift left 2 units.	7. Horizontal dilation	8. Reflection across the x-axis and vertical dilation by a factor of 2.
9. Shift right 3 units.	10. $5\sqrt{2}$	11. $2\sqrt[5]{9}$	12. $\frac{5}{\sqrt[4]{16}} = \frac{5}{2}$	13. $\frac{6}{\sqrt[3]{7}}$