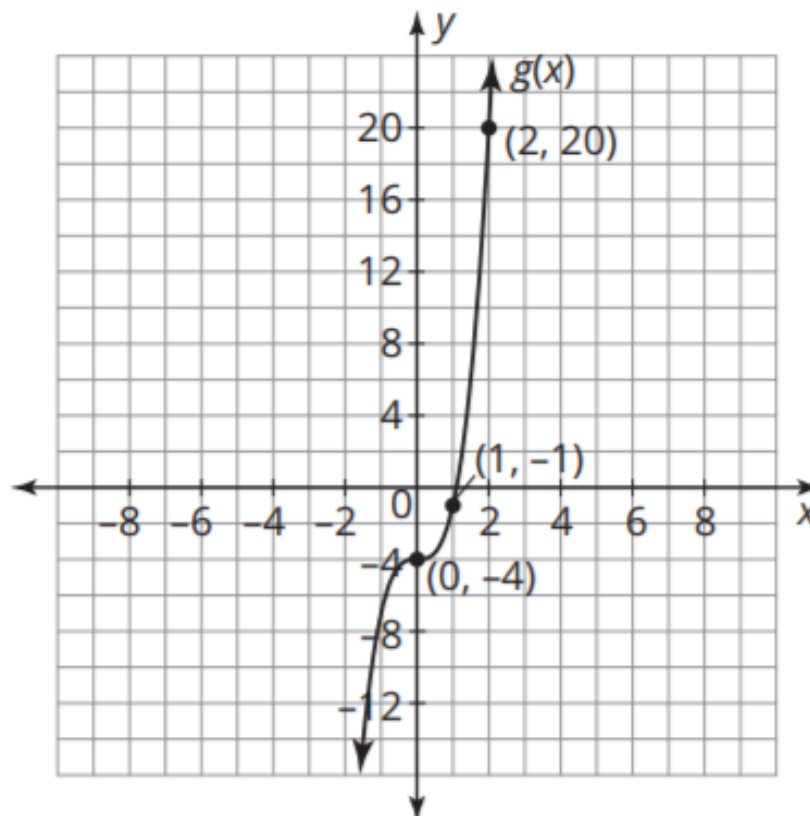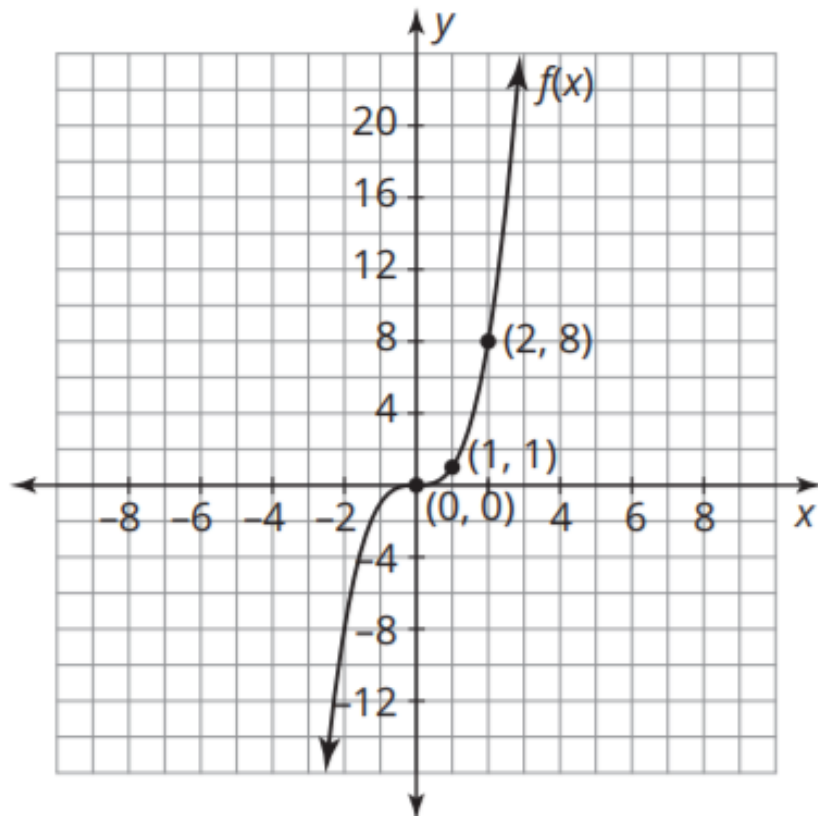3. **Complete the table to show the coordinates of $g(x) = Af(B(x - C)) + D$ after each type of transformation performed on $f(x)$.**

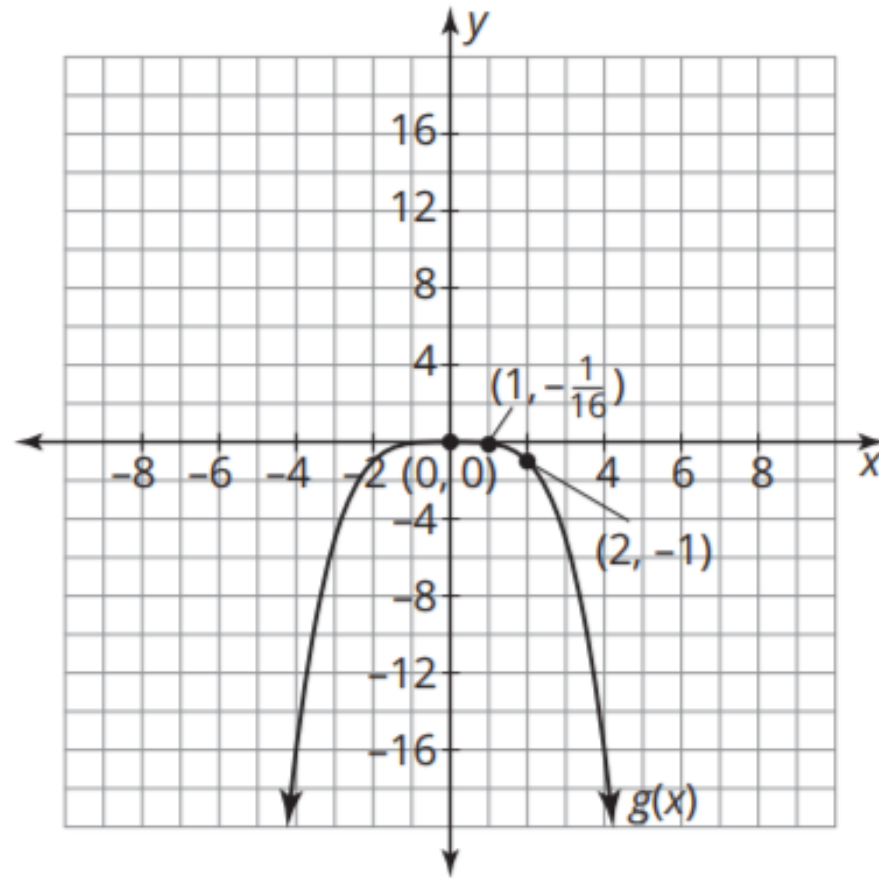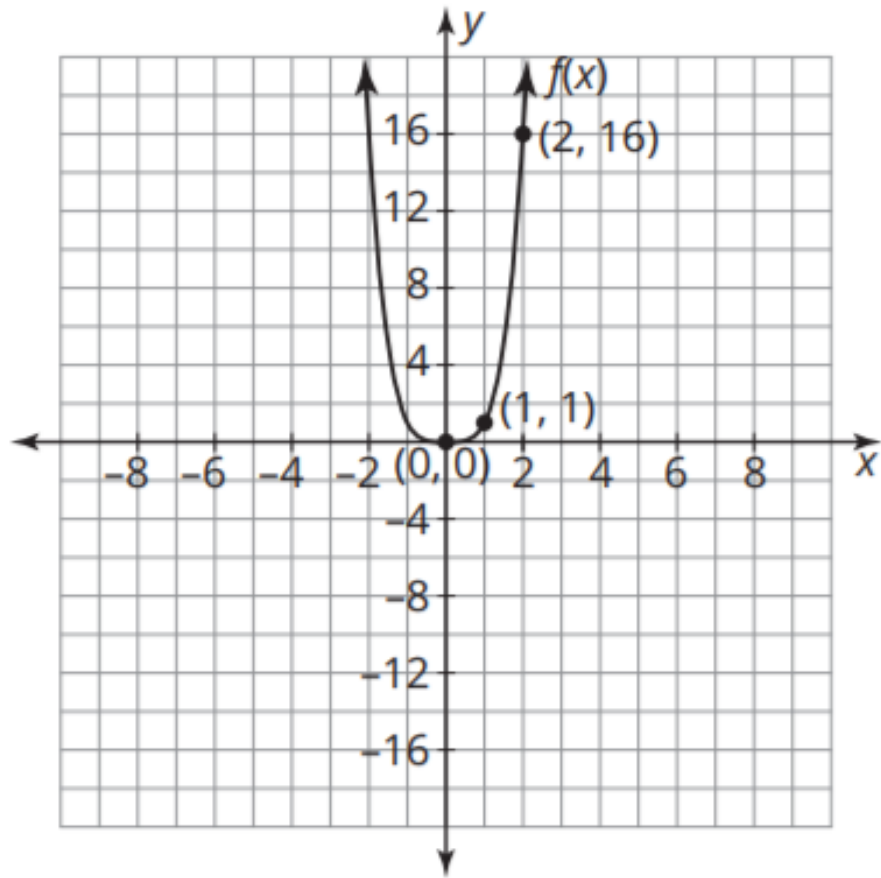| Type of Transformation Performed on $f(x)$	Coordinates of $f(x) \rightarrow$ Coordinates of $g(x)$
Vertical Dilation by a Factor of A	$(x, y) \rightarrow (\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$
Horizontal Dilation by a Factor of B	$(x, y) \rightarrow (\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$
Horizontal Translation of C units	$(x, y) \rightarrow (\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$
Vertical Translation of D units	$(x, y) \rightarrow (\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$
All four transformations: A, B, C, and D	$(x, y) \rightarrow (\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$

1. **Analyze the graphs of $f(x)$ and $g(x)$. For each reference point on $f(x)$, the corresponding points after the transformations are shown on $g(x)$. Describe the transformations performed on $f(x)$ to create $g(x)$. Then, write an equation for $g(x)$ in terms of $f(x)$.**
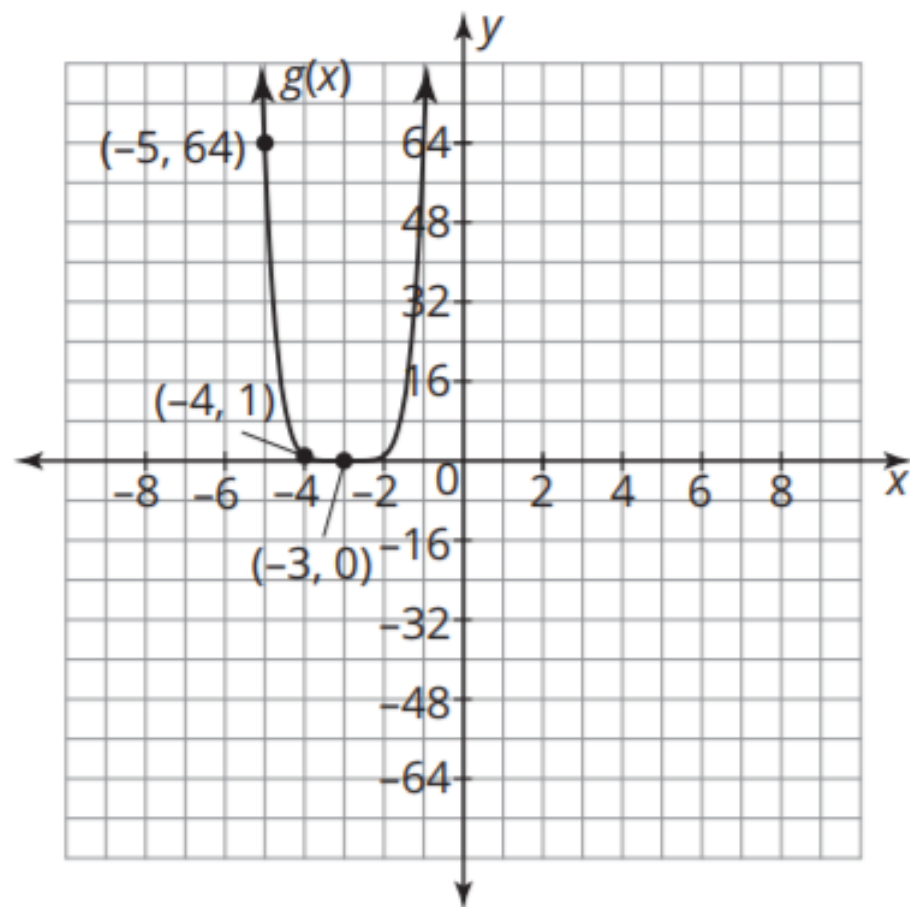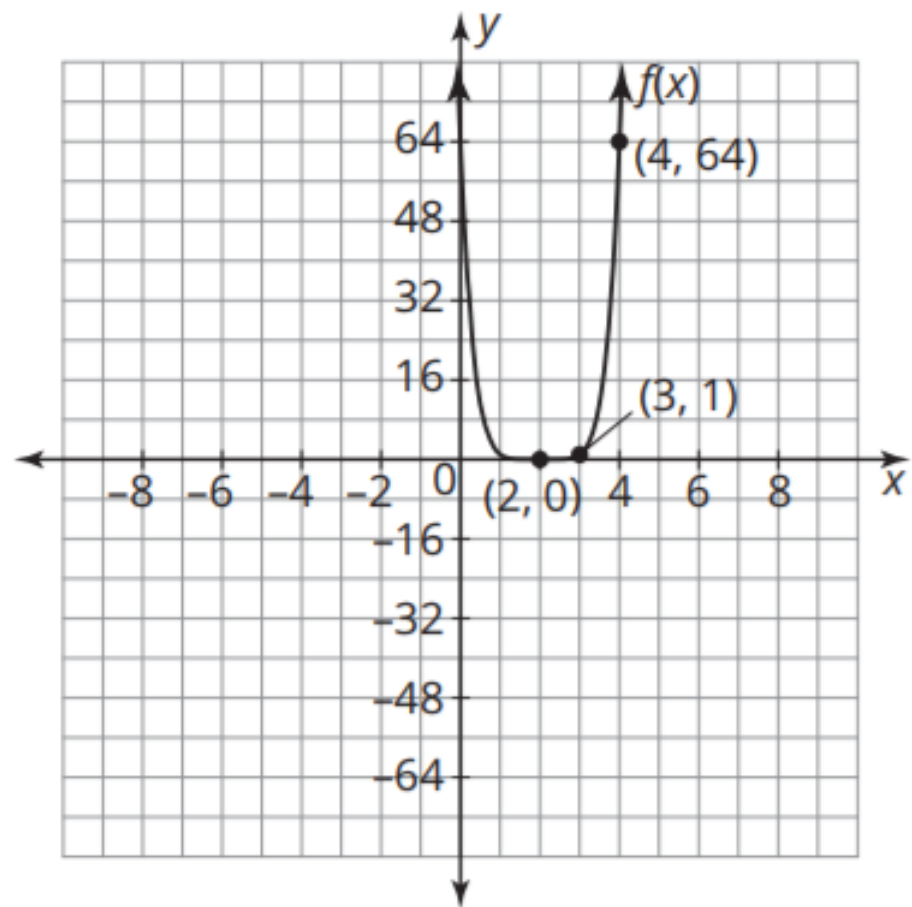
a. $g(x) = $ _____

b. $g(x) =$ _____

Left graph: $f(x)$ with points $(0, 0)$, $(1, 1)$, $(2, 16)$.

Right graph: $g(x)$ with points $(0, 0)$, $\left(1, -\frac{1}{16}\right)$, $(2, -1)$.

c. $g(x) =$ _____

$g(x) = (x + 3)^6$

2. The equation for a polynomial function $p(x)$ is given. The equation for the transformed function $t(x)$ in terms of $p(x)$ is also given. Describe the transformation(s) performed on $p(x)$ that produced $t(x)$. Then, write an equation for $t(x)$ in terms of x.

a. $p(x) = x^5$
   $t(x) = 0.5p(-x)$

b. $p(x) = x^4$
   $t(x) = 2p(x + 3)$

c. $p(x) = x^3$
   $t(x) = -p(x - 2) + 4$

1. Cut out the Function Transformation Cards located at the end of the lesson. Match the function representation with its corresponding coordinate pair. For each function representation or coordinate pair that does not have a match, provide a match by writing the appropriate equation or coordinate pair on a blank card.

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