Student: Arfaz Hossain	**Course:** MATH 100 (A01, A02, A03) Fall 2021
Instructor: UVIC Math	**Book:** Thomas' Calculus Early Transcendentals, 14e
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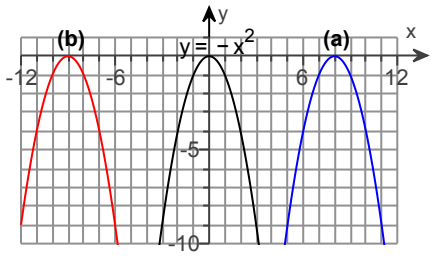
The graph to the right shows the graph of $y = -x^2$ shifted to two new positions labeled **(a)** and **(b)**. Write equations for the new graphs.



(a) First determine the correct form of the equation.

A function of the form $y = f(x) + k$ shifts the graph of f up k units if $k > 0$ and shifts the graph down $|k|$ units if $k < 0$. A function of the form $y = f(x + h)$ shifts the graph of f left h units if $h > 0$, and shifts the graph right $|h|$ units if $h < 0$.

Notice that the graph is shifted 8 units to the right. So the equation for the new graph is of the form $y = f(x + h)$.

Thus, the equation of the new graph is $y = -(x - 8)^2$.

(b) Notice that the new graph is shifted 9 units to the left. Again, the equation for the new graph is of the form $y = f(x + h)$.

Therefore, the equation of the new graph is $y = -(x + 9)^2$.