

5.3 HW (Part 2 - Horizontal Translations)

Describe each new graph in relation to its basic function.

1. Basic function: $h(x) = x$ New function: $f(x) = x + b$

Vertical translation, UP b units

2. Basic function: $h(x) = b^x$ New function: $f(x) = b^{(x-c)}$

Horizontal translation, RIGHT c units

3. Basic function: $h(x) = x$ New function: $f(x) = (x - b)$

Horizontal translation, RIGHT b units

4. Basic function: $h(x) = b^x$ New function: $f(x) = b^{(x+c)}$

Horizontal translation, LEFT c units

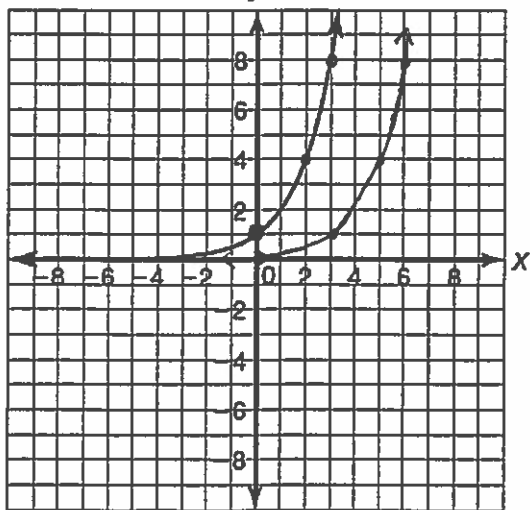
5. Basic function: $h(x) = b^x$ New function: $f(x) = b^x - k$

Vertical translation, DOWN k units

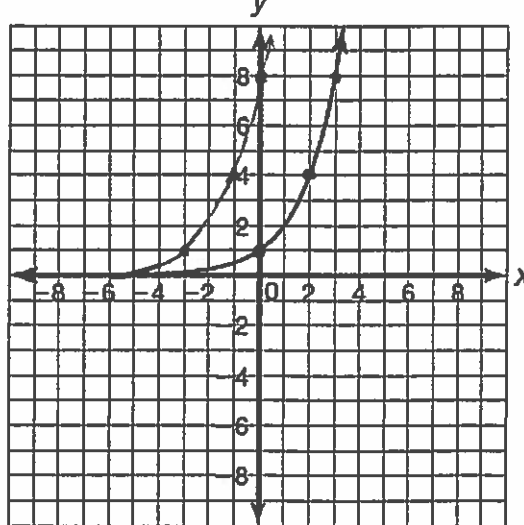
6. Basic function: $h(x) = x$ New function: $f(x) = (x + b)$

Horizontal translation, LEFT b unitsEach coordinate plane shows the graph of $f(x)$. Sketch the graph of $g(x)$.

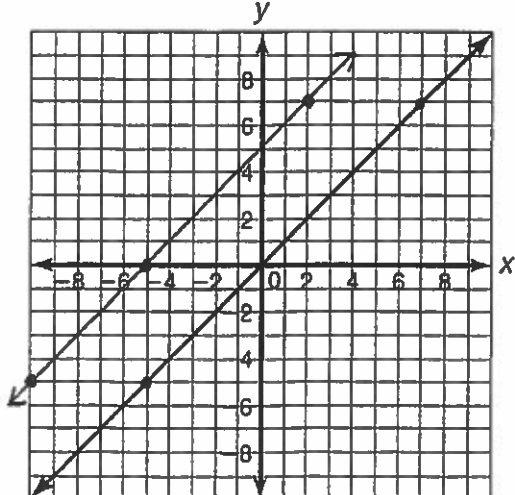
7. $g(x) = f(x - 3)$ HT $\rightarrow 3$



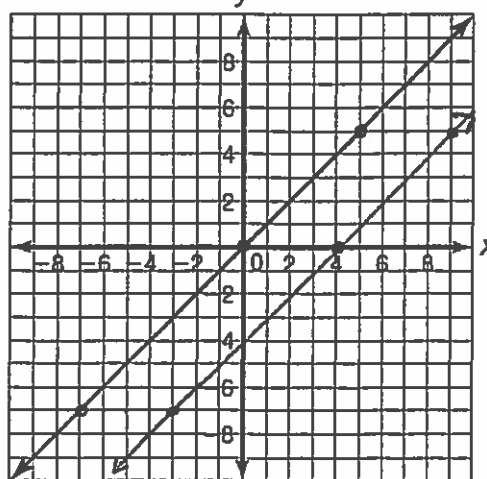
8. $g(x) = f(x + 3)$ HT $\leftarrow 3$



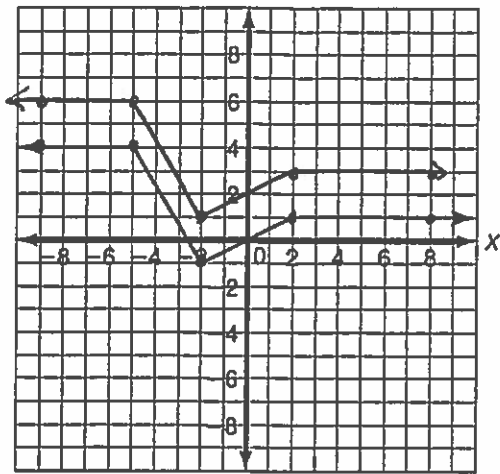
9. $g(x) = f(x + 5)$ HT $\leftarrow 5$



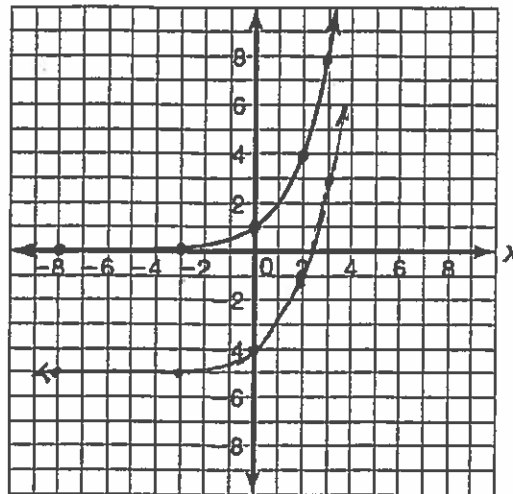
10. $g(x) = f(x - 4)$ HT $\rightarrow 4$



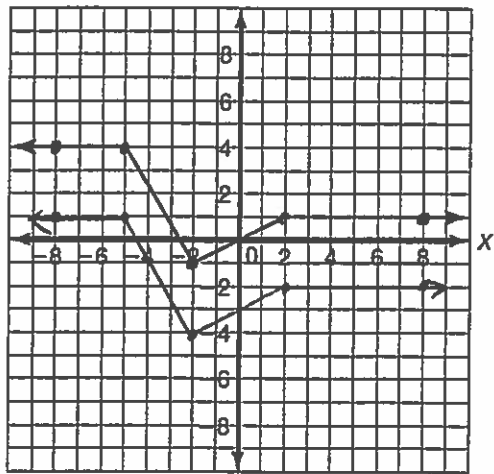
11. $g(x) = f(x) + 2$ $\sqrt{T} \uparrow 2$



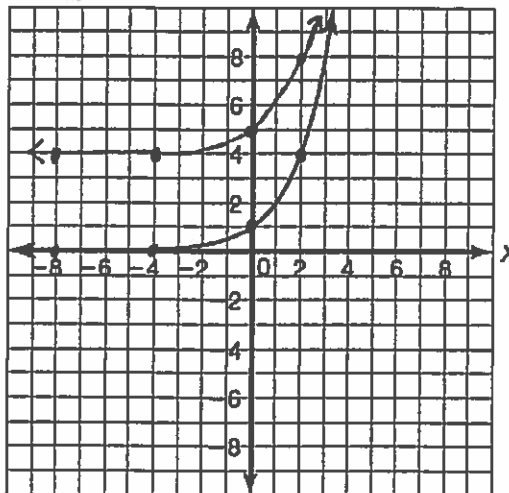
12. $g(x) = f(x) - 5$ $\sqrt{T} \downarrow 5$



13. $g(x) = f(x) - 3$ $\sqrt{T} \downarrow 3$

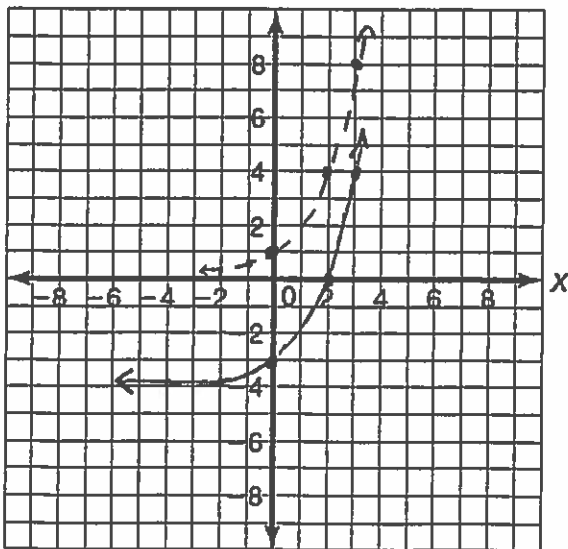


14. $g(x) = f(x) + 4$ $\sqrt{T} \uparrow 4$



For each of the following, graph the basic function and the second function on the same graph.

15. $f(x) = 2^x$; $g(x) = 2^x - 4$ $\sqrt{T} \downarrow 4$



16. $f(x) = \left(\frac{1}{2}\right)^x$; $g(x) = \left(\frac{1}{2}\right)^{x+3}$ $HT \leftarrow 3$

