

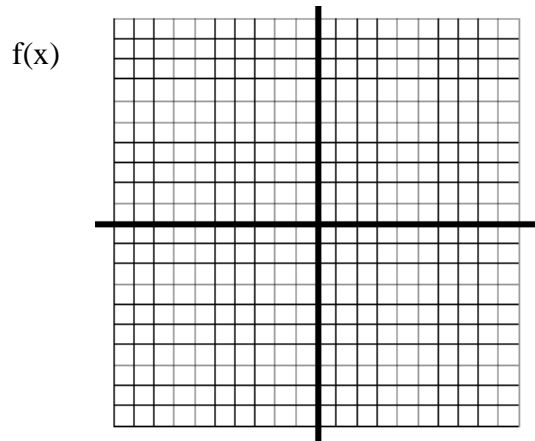
Section 1-3
Dilations and Translations of Graphs

Dilation: graph magnified by a factor

Pre-image: original function $f(x)$

Translation: graph slides to the left, right, up or down

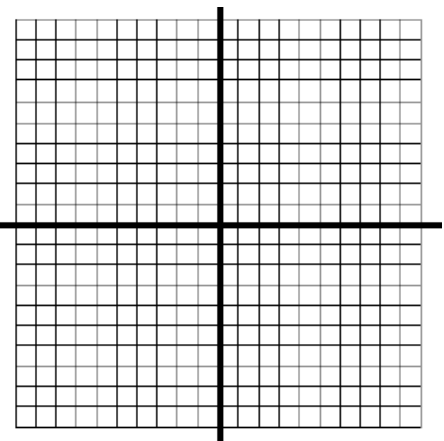
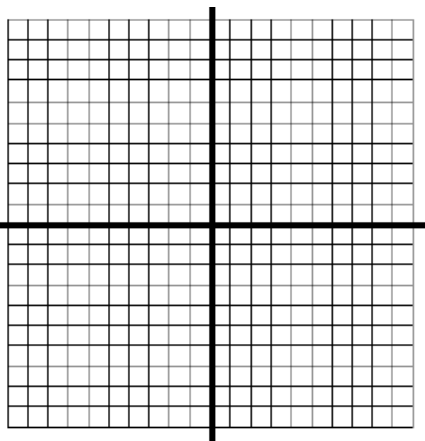
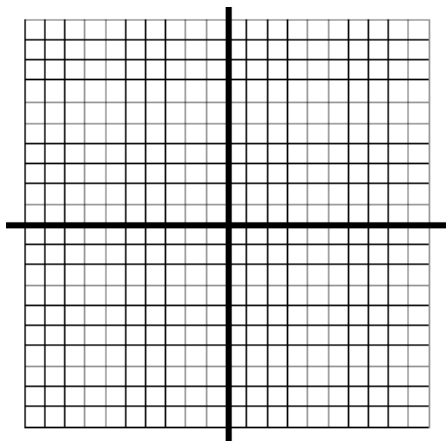
image: graph after transformations



$$g(x) = 2 + f(x)$$

$$g(x) = -3 + f(x)$$

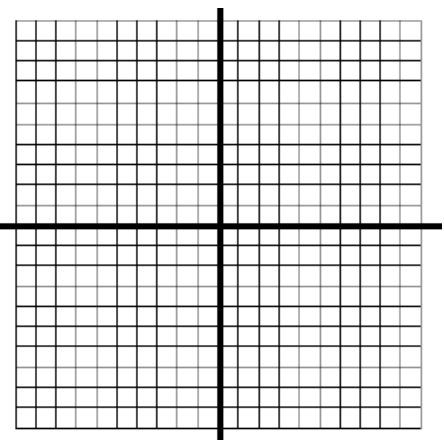
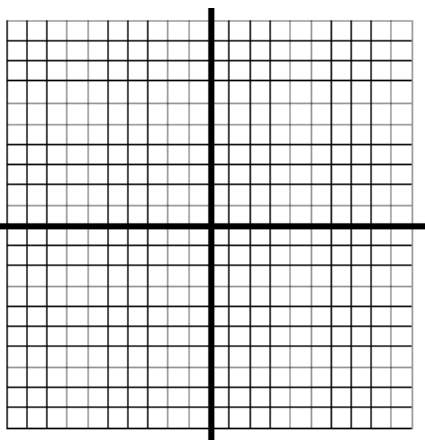
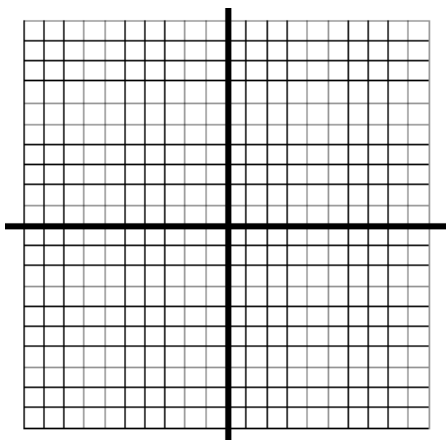
$$g(x) = 4 + f(x)$$



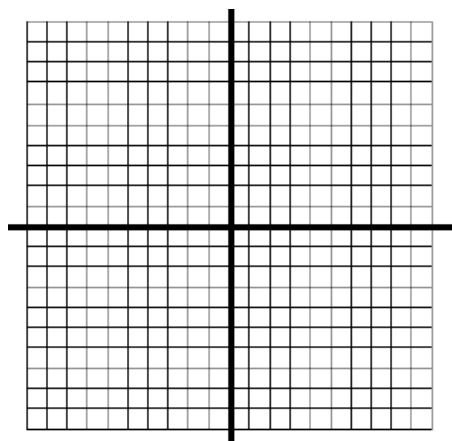
$$g(x) = f(x - 2)$$

$$g(x) = f(x + 3)$$

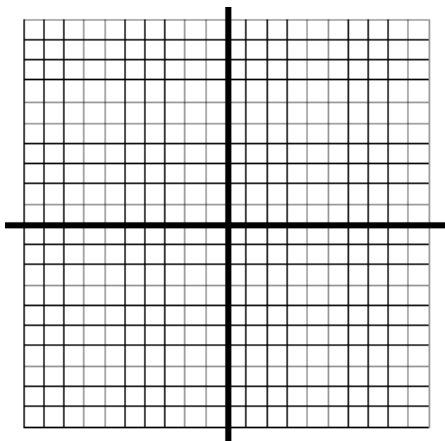
$$g(x) = f(x + 4)$$



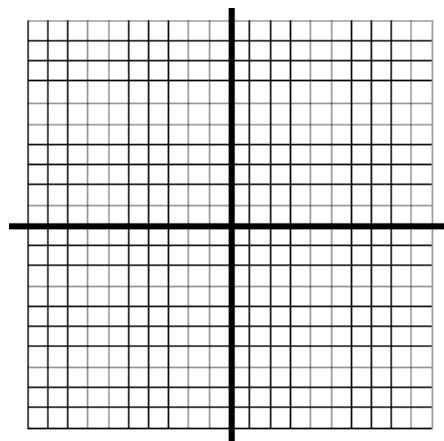
$$g(x) = 3f(x)$$



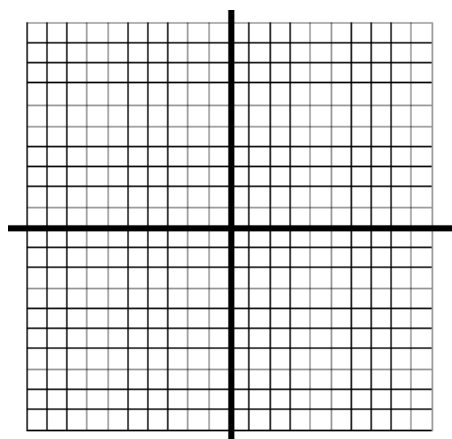
$$g(x) = \frac{1}{2} f(x)$$



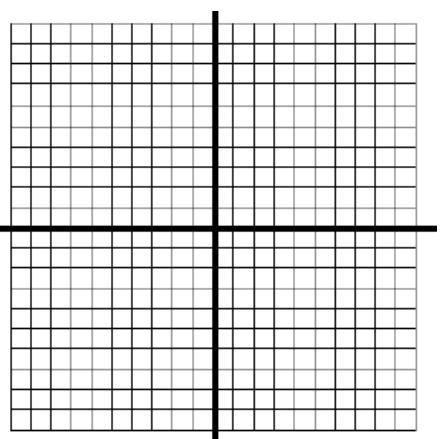
$$g(x) = 4f(x)$$



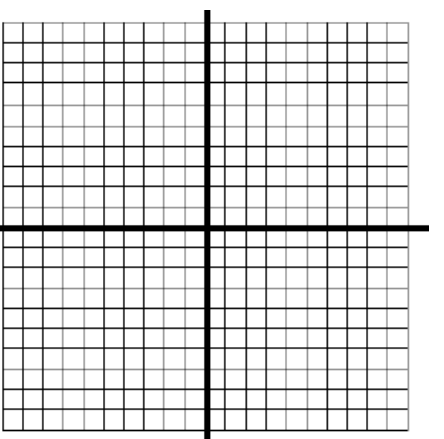
$$g(x) = f(3x)$$



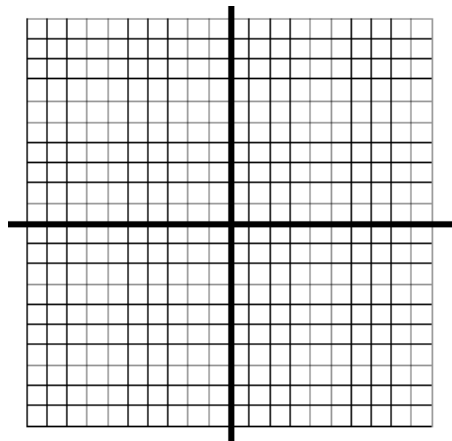
$$g(x) = f\left(\frac{1}{2}x\right)$$



$$g(x) = f(4x)$$



$$g(x) = 4 + f\left(\frac{1}{2}x\right)$$



$$g(x) = -1 + f(3x)$$

