

Quiz 1. True/False: The function $f(x) = 9 - 5x$ is a linear function with slope 5 and y -intercept 9.

Solution. The statement is *false*. We know a function of the form $f(x) = mx + b$ is a linear function with slope m and y -intercept b . Because we have $f(x) = 9 - 5x = -5x + 9$, we have $m = -5$, i.e. slope -5 , and y -intercept 9, i.e. $(0, 9)$. But then the slope is -5 , not the given value of 5.

Quiz 2. True/False: If $f(x) = 2x - 1$ and $g(x) = 3 - x$, then $(f \circ g)(0) = f(0)g(0) = -1 \cdot 3 = -3$.

Solution. The statement is *false*. First, note that $f(0) = 2(0) - 1 = -1$, $g(0) = 3 - 0 = 3$, and $f(3) = 2(3) - 1 = 6 - 1 = 5$. What was given was function multiplication, i.e. what was computed was $(fg)(0) = f(0)g(0) = -1 \cdot 3 = -3$. What was originally written was function composition. We have $(f \circ g)(0) = f(g(0)) = f(3) = 5$.

Quiz 3. True/False: Compared to the graph of $f(x)$, the graph of $5 - 3f(x + 2)$ is stretched by a factor of 3, then shifted to the right by 2 and up by 5.

Solution. The statement is *false*. We know that $f(x + 2)$ is the graph of $f(x)$ shifted 2 to the *left*. The graph of $-3f(x + 2)$ is then the graph of $f(x)$ shifted two to the left, stretched by a factor of 3, and reflected across the x -axis. Finally, the graph of $5 - 3f(x + 2)$ is the graph of $f(x)$ shifted two to the left, stretched by a factor of 3, reflected across the x -axis, then shifted upwards by 5.