Alg2 second functions practice re-test

Be sure to show all your work. Given $f(x) = x^2 + 3$ and $g(x) = -2x + 1$

1) Find $(f + g)(4)$

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

3) Find $(f - g)(3)$

4) Find $(f - g)(x)$

5) Find $(g - f)(5)$

6) Find $(g - f)(x)$

7) Given $f(x) = 3x + 1$ and $g(x) = x - 2$

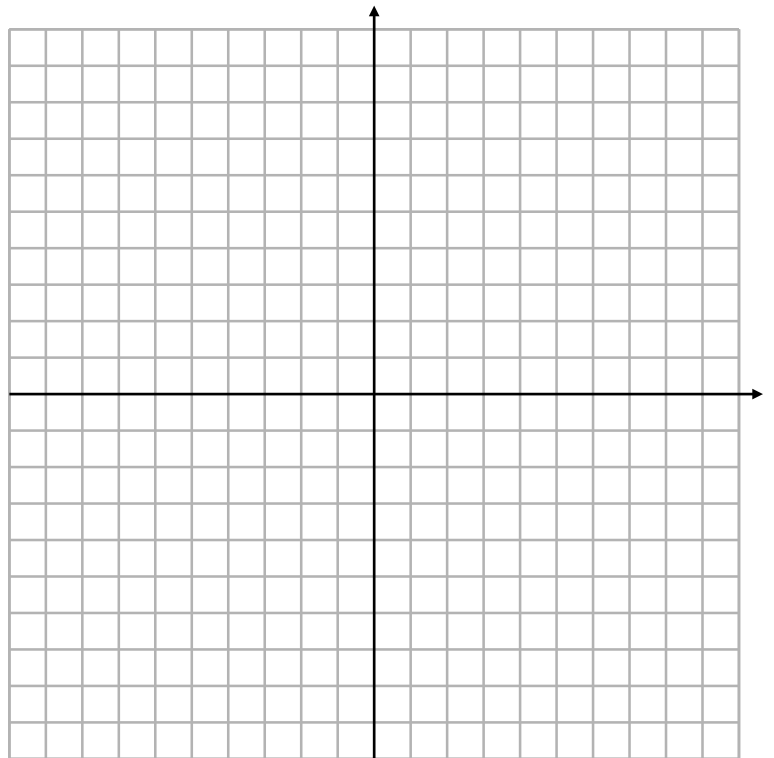Find $(f \cdot g)(2)$ and $(f \cdot g)(x)$

8) Given $f(x) = x^2 - 1$ and $g(x) = x - 1$

Find $(f \circ g)(x)$ and check your answer for both $x = 2$ and for $x = -3$

9) Solve the equation $|x + 3| + 2 = -x + 1$

(Be sure to check your answers and discard any extraneous solutions.)

Graph two functions, one for each side of the equation.

Given $f(x) = 2\sqrt{x+1}$

10)   Find the inverse of $f(x)$ and verify that it is an inverse.

11)   State the domain and range of $f(x)$

12)   State the domain and range of $f^{-1}(x)$

13)   Is $f(x)$ a function?   Explain.

14)   Is $f^{-1}(x)$ a function?   Explain.

15)   Graph $f(x)$ and its inverse.