Name: _____

Given $f(x) = 2x - 3$ and $g(x) = x^2 + 3$, find the following:
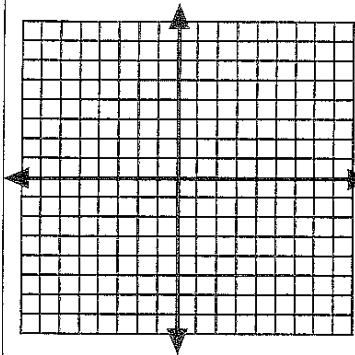
1. $(f+g)(x)$	2. $(f-g)(x)$
3. $(f \bullet g)(x)$	4. $\left(\dfrac{f}{g}\right)(x)$
5. $(f \circ g)(x)$	6. $(g \circ f)(x)$
7. $\left(f\left(g(-5)\right)\right)$	8. $\left(g\left(f(7)\right)\right)$

Find the inverse.

9. $\{(2,\ 3),(4,\ -5),(-2,\ 4)\}$	10. $f(x) = x^2 + 2$	11. $f(x) = 3x + 5$

Graph each function. Then state the domain and range.
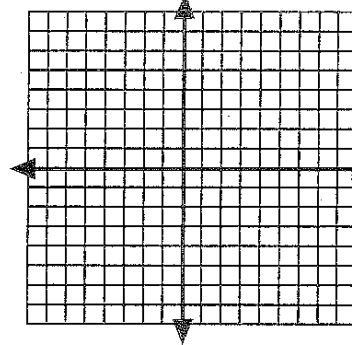
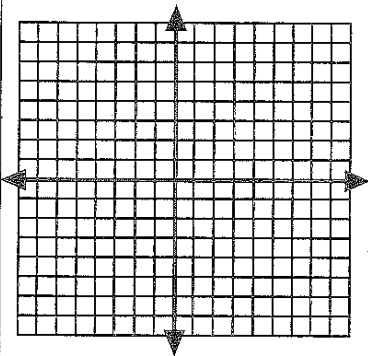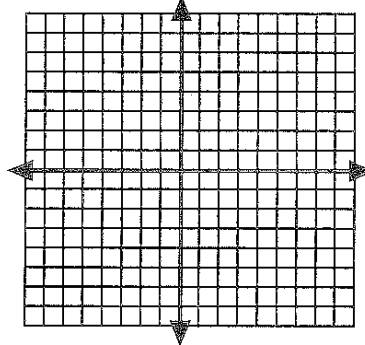| 12. $f(x)=\sqrt{3x+6}-1$	13. $f(x)=2+\sqrt{x}$
D = _____ R = _____	D = _____ R = _____

Graph each inequality.

14. $f(x)<\sqrt{x+6}+3$	15. $f(x)\geq-2\sqrt{x-1}$

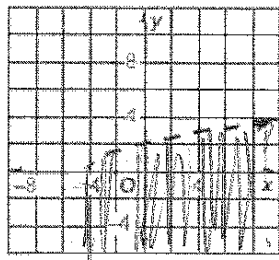| 16. For the functions, find $f \circ g$, if it exists. $f=\{(-9,\ -1),\ (-1,\ 0),\ (3,\ 4)\}$ $g=\{(0,\ -9),\ (-1,\ 3),\ (4,\ -1)\}$	17. For the functions, find $g \circ f$, if it exists. $f=\{(-4,\ 3),\ (0,\ -2),\ (1,\ -5)\}$ $g=\{(-2,\ 0),\ (3,\ 1)\}$
18. Write the inequality that is graphed. 	19. What is the domain of $f(x)=\sqrt{2x+5}$?