Name: Key Hr:____

Sec. 4.7
Combinations of Functions

Given the functions $f(x)=9-3x$ and $g(x)=5x-7$, perform the indicated operations.

1. $f+g$

$2x+2$

2. $f-g$

$(9-3x)-(5x-7)$

$9-3x-5x+7$

$16-8x$

3. $g-f$

$8x-16$

4. $f\cdot g$

$-15x^2+66x-63$

5. $\frac{f}{g}$

$\frac{9-3x}{5x-7}$

Domain Restriction: $x\neq\frac{7}{5}$

6. $\frac{g}{f}$

$\frac{5x-7}{9-3x}$ $x\neq 3$

Given the functions $f(x)=x^2+9$ and $g(x)=x-9$, perform the indicated operations.

7. $(f+g)(x)$

x^2+x

8. $\left(\frac{f}{g}\right)(x)$

$\frac{x^2+9}{x-9}$ $x\neq 9$

9. $(f\cdot g)(x)$

x^3-9x^2

Given the functions $f(x)=4x+8$ and $g(x)=x+3$, perform the indicated operations.

10. $(f+g)(x)$

$5x+11$

11. $(f\cdot g)(x)$

$(4x+8)(x+3)$

$4x^2+12x+8x+24$

$4x^2+20x+24$

12. $\left(\frac{f}{g}\right)(x)$

$\frac{4x+8}{x+3}$ $x\neq -3$

13. $(f-g)(x)$

$3x+5$

14. $\left(\frac{g}{f}\right)(x)$

$\frac{x+3}{4x+8}$

$x\neq -2$

15. $(g-f)(x)$

$-3x-5$

Given the functions $f(x)=3x-5$ and $g(x)=x-10$, perform the indicated operations.

16. $f(-3)$

$3(-3)-5$

-14

17. $g(22)$

12

18. $(f-g)(-3)$

$(3(-3)-5)-(-3-10)$

$-14+13=1$

19. $(g+f)(8)$

17

20. $\left(\frac{f}{g}\right)(7)$

$\frac{16}{-3}$

21. $\left(\frac{g}{f}\right)(0)$

2

Given the functions $f(x)=x^2$ and $g(x)=4x-12$, perform the indicated operations.

22. $f(-2)+g(1)$

-4

23. $g(-1)-f(2)$

-20

24. $(f+g)(1)$

$(1)^2+4(1)-12$

-7

25. $\left(\frac{g}{f}\right)(3)$

0

26. $\frac{f(2)+g(3)}{4}$

1

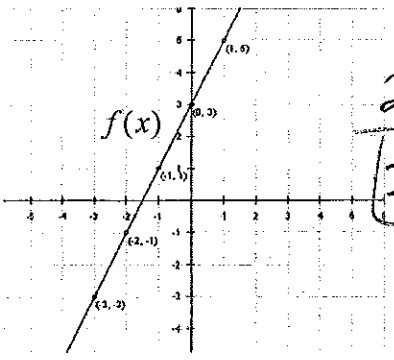
27. $\frac{5}{(f-g)(1)}$

$\frac{-5}{7}$

Given the Function $g(x)=2x^2+2$, perform the indicated operations.

28. $f+g$

$f(x)=2x+3$



$2x+3+2x^2+2$

$2x^2+2x+5$

29. $g-f$

x^2+6