Practice Worksheet:
Operations & Composition with Functions

Perform the indicated operation and simplify completely. Show all work to get credit.

$f(x) = 10x$	$g(x) = -5x$	$h(x) = 8$	$j(x) = -10$

1] $(f + j)(x) =$

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

3] $(g \cdot h)(x) =$

4] $\left(\frac{g}{j}\right)(x) =$

5] $(h - g)(5) =$

6] $(f \cdot g)(-1) =$

$f(x) = 6x + 4$	$g(x) = 4 - 6x$	$h(x) = 2x$	$j(x) = -2$

7] $(f + g)(x) =$

8] $(f - g)(x) =$

9] $(f \cdot j)(x) =$

10] $\left(\frac{g}{j}\right)(x) =$

11] $(h - g)\left(\frac{1}{2}\right) =$

12] $(f \cdot g)\left(-\frac{1}{6}\right) =$

$f(x) = x^2$	$g(x) = 10x + 5$	$h(x) = \sqrt{x}$	$j(x) = 5$

13] $(f + g)(x) =$

14] $(f - g)(x) =$

15] $(f \cdot j)(x) =$

16] $\left(\frac{g}{j}\right)(x) =$

17] $(h + j)(49) =$

18] $(f \cdot h)(4) =$

Use the tables of ordered pairs to determine the value of each composite function.

$f(x) = x^2 - 15$

x	$f(x)$
1	-14
2	-11
3	-6
4	1
5	10
6	21
7	34

$g(x) = \sqrt{x}$

x	$g(x)$
1	1
4	2
9	3
16	4
25	5
36	6
49	7

19] $(f \circ g)(36) =$

20] $(g \circ g)(16) =$

21] $(g \circ f)(4) =$

22] $(f \circ f)(4) =$

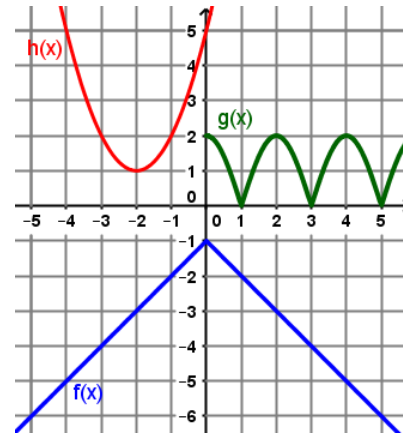Use the graph to determine the value of each composite function.

23] $(h \circ f)(3) =$

24] $(f \circ g)(4) =$

25] $(f \circ f)(-4) =$

26] $(g \circ g)(1) =$

27] $(g \circ h)(0) =$

Use the functions to determine the value of each composite function algebraically.

$$f(x) = 2x^2 \qquad g(x) = 3x - 2 \qquad h(x) = 3 - 4x \qquad j(x) = \frac{6}{x}$$

28] $(f \circ g)(3) =$

29] $(h \circ j)(12) =$

30] $(g \circ h)(x) =$

31] $(h \circ g)(x) =$

32] Sally Salesperson sells shoes part time at Super Shoes in the South Street Mall. She earns a 2% commission on total sales over $5,000, which is paid as a bonus at the end of the year.
Let her total sales be represented by x. $f(x) = x - 5000$ and $g(x) = 0.02x$

Which composition of functions would calculate her bonus at the end of the year? $(f \circ g)(x)$ or $(g \circ f)(x)$?
Explain your reasoning.

33] Sally sold $9,172 in shoes this year. Use composition of functions to calculate her bonus. Show work.