

Given $f(x) = x + 4$, $g(x) = -2x^2$, and $h(x) = 5$, find each value.

15. $[f \circ g](10)$

16. $[g \circ f](10)$

17. $[f \circ h](0)$

18. $[h \circ f](3)$

19. $[g \circ h](-2)$

20. $[h \circ g](-2)$

21. $[f \circ g](-4)$

22. $[g \circ f](-4)$

23. $[g \circ f](-12)$

Find $[f \circ g](x)$ and $[g \circ f](x)$, if they exist. State the domain and range for each composed function.

34. $f(x) = -3x$
 $g(x) = -x + 8$

37. $f(x) = x - 4$
 $g(x) = x^2 - 10$

40. $f(x) = 4x - 1$
 $g(x) = x^3 + 2$

35. $f(x) = 2x$
 $g(x) = x + 5$

38. $f(x) = x^2 + 6x - 2$
 $g(x) = x - 6$

41. $f(x) = x^2 + 3x + 1$
 $g(x) = x^2$

36. $f(x) = x + 5$
 $g(x) = 3x - 7$

39. $f(x) = 2x^2 - x + 1$
 $g(x) = 4x + 3$

42. $f(x) = 2x^2$
 $g(x) = 8x^2 + 3x$

43. **MP SENSE-MAKING** Ms. Smith wants to buy a home theater system, which is on sale for 35% off the original price of \$2299. The sales tax is 6.25%.
- Write two functions representing the price after the discount $p(x)$ and the price after sales tax $t(x)$.
 - Which composition of functions represents the price of the home theater system, $[p \circ t](x)$ or $[t \circ p](x)$? Explain your reasoning.
 - How much will Ms. Smith pay for the home theater system?

If $f(x) = 5x$, $g(x) = -2x + 1$, and $h(x) = x^2 + 6x + 8$, find each value.

44. $f[g(3a)]$

45. $f[h(a + 4)]$

46. $g[f(a^2 - a)]$

Use the table to find each value.

47. $[f \circ g](-2)$

48. $[g \circ f](-2)$

49. $[f \circ g](-1)$

50. $[g \circ f](1)$

51. $[h \circ g](2)$

52. $[g \circ h](2)$

53. $[f \circ h](0)$

54. $[f \circ g](-1)$

x	$f(x)$	$g(x)$	$h(x)$
-2	-2	1	0
-1	-4	1	0
0	-2	-2	-2
1	2	-1	-2
2	-1	0	5