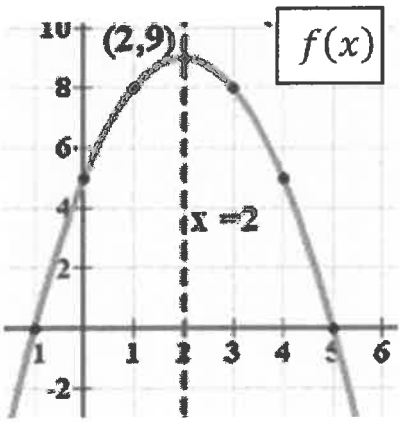
Honors Intermediate Algebra
Functions - Operations with Functions Extra Practice

Name Key

Given the functions below, find the following.



x	$g(x)$
-3	0
0	-16
2	3
8	9
12	-7

$$h(x) = 5x - 12$$

1. $f(4)$

5

2. $h(10)$

$5(10) - 12$

38

3. $(f + g)(0)$

$f(0) + g(0)$

$5 + -16$

-11

4. $(g \cdot h)(8)$

$g(8) \cdot h(8)$

$4 \cdot 28$

252

5. $(h \circ g)(12)$

$h(g(12))$

$h(-7)$

$5(-7) - 12$

-47

6. $\left(\frac{h}{f}\right)(2)$

$\frac{h(2)}{f(2)}$ $\frac{-2}{9}$

7. $(h \circ h)(x)$

$h(h(x))$

$5(5x-12) - 12$

$25x - 60 - 12$

$25x - 72$

Given the functions below, perform the indicated operations.

$f(x) = 3x + 9$ $g(x) = 6x$ $h(x) = 14 - 5x$ $j(x) = 4x^2 - 3x + 1$

8. $-2f(5)$

$-2(3(5)+9)$

-48

9. $h(3m + 5)$

$14 - 5(3m+5)$

$14 - 15m - 25$

$-15m - 11$

10. $j(-4k)$

$4(-4k)^2 - 3(-4k) + 1$

$4(16k^2) + 12k + 1$

$64k^2 + 12k + 1$

11. $j(1 - w)$

$4(1-w)^2 - 3(1-w) + 1$

$4(1 - 2w + w^2) - 3 + 3w + 1$

$4w^2 - 8w + 4 + 3w - 2$

$4w^2 - 5w + 2$

Given the functions below, perform the indicated operations.

$$f(x) = 3x + 9 \qquad g(x) = 6x \qquad h(x) = 14 - 5x \qquad j(x) = 4x^2 - 3x + 1$$

12. $f(5x - 9)$

$3(5x-9)+9$

$15x-27+9$

$15x-18$

13. $(f + h)(4)$

$3(4)+9 \quad 14-5(4)$

$21+-6$

15

14. $(g - j)(-8)$

$6(-8) \quad 4(-8)^2-3(-8)+1$

$-48-281$

-329

15. $(fg)(2)$

$3(2)+9 \quad 6(2)$

$15 \cdot 12$

180

16. $\left(\frac{g}{h}\right)(-3)$

$6(-3) = -18$

$14-5(-3) = 29$

$\frac{-18}{29}$

17. $(h \circ j)(-2)$

$h(j(-2))$

$4(-2)^2-3(-2)+1$

$h(23)$

$14-5(23)$

-101

18. $(g + h)(x)$

$6x + 14 - 5x$

$14+x$

19. $(f - h)(x)$

$(3x+9)-(14-5x)$

$8x-5$

20. $(gh)(x)$

$(6x)(14-5x)$

$84x-30x^2$

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

$\frac{6x}{3x+9} \quad \frac{6x}{3(x+3)}$

$\frac{2x}{x+3}$

22. $(h \circ f)(x)$

$h(f(x))$

$14-5(3x+9)$

$14-15x-45$

$-15x-31$

23. $(j \circ h)(x)$

$j(h(x))$

$4(14-5x)^2-3(14-5x)+1$

$4(196-140x+25x^2)-42+15x+1$

$784-560x+100x^2+15x-41$

$100x^2-545x+743$