



Practice

2.4 Operations With Functions

Find $f + g$ and $f - g$.

1. $f(x) = 7x^2 + 5x; g(x) = x^2 - 13$ _____
2. $f(x) = 41 - 5x; g(x) = 13x^2$ _____
3. $f(x) = x^2 + \frac{1}{3}x + 9; g(x) = -7x - 7$ _____
4. $f(x) = -9x^2 + 6; g(x) = 12x^2$ _____

Find $f \cdot g$ and $\frac{f}{g}$. State any domain restrictions.

5. $f(x) = 35x + 5; g(x) = 5$ _____
6. $f(x) = x^2 + 25; g(x) = 3x + 17$ _____
7. $f(x) = x^2 + 16; g(x) = x^2 - 16$ _____

Let $f(x) = -2x - 2$ and $g(x) = x + 10$. Find each new function, and state any domain restrictions.

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| 8. $f + g$ _____ | 9. $f - g$ _____ |
| 10. $g - f$ _____ | 11. $f \cdot g$ _____ |
| 12. $\frac{f}{g}$ _____ | 13. $\frac{g}{f}$ _____ |

Find $f \circ g$ and $g \circ f$.

14. $f(x) = 3x - 2; g(x) = \frac{1}{3}(x + 2)$ _____
15. $f(x) = 4x; g(x) = x^2 - 1$ _____
16. $f(x) = -x^2 + 1; g(x) = x$ _____

Let $f(x) = 11x$, $g(x) = x^2 - 5$, and $h(x) = 2(x - 4)$. Evaluate each composite function.

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| 17. $(f \circ g)(-1)$ _____ | 18. $(h \circ f)(-2)$ _____ | 19. $(h \circ g)(2)$ _____ |
| 20. $(g \circ h)(4)$ _____ | 21. $(g \circ f)(0)$ _____ | 22. $(f \circ h)(5)$ _____ |
| 23. $(f \circ g)(0)$ _____ | 24. $(h \circ h)(-1)$ _____ | 25. $(f \circ f)(2)$ _____ |

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