Combining functions: sums, differences, products and quotients worksheet – Grade 12

Grade 12 · Mixed level · 20 questions · **Version X8363**

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1. If $f(x) = -2x - 5$ and $g(x) = 2x^2 + 7x + 5$, find $(f - g)(4)$.

   Answer: _____

2. If $f(x) = -4x + 7$ and $g(x) = x^2 - 3x - 6$, find $\left(\frac{f}{g}\right)(-3)$. (Give a fraction if needed.)

   Answer: _____

3. If $f(x) = -3x + 6$ and $g(x) = 3x^2 + 7x - 6$, find $\left(\frac{f}{g}\right)(2)$. (Give a fraction if needed.)

   Answer: _____

4. If $f(x) = 4x - 2$ and $g(x) = 3x^2 + 6x + 2$, find $(f + g)(-3)$.

   Answer: _____

5. If $f(x) = 3x - 5$ and $g(x) = x^2 - 6x + 2$, find $\left(\frac{f}{g}\right)(-1)$. (Give a fraction if needed.)

   Answer: _____

6. If $f(x) = 5x$ and $g(x) = -x^2 - 4x - 3$, find $(f - g)(0)$.

   Answer: _____

7. If $f(x) = -3x + 7$ and $g(x) = 2x^2 + 2x + 6$, find $(f \cdot g)(2)$.

   Answer: _____

8. If $f(x) = 2x - 4$ and $g(x) = 2x^2 - 3x + 6$, which expression is $(f - g)(x)$?

   A. $-2x^2 + 5x - 10$ **B.** $2x^2 - x + 2$ **C.** $-2x^2 - x - 10$ **D.** $-2x^2 + 5x + 2$

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9. If $f(x) = 5x - 3$ and $g(x) = -x^2 + 3x - 4$, which expression is $(f \cdot g)(x)$?

   A. $-5x^3 + 18x^2 - 29x + 12$ **B.** $-5x^2 + 18x + 12$ **C.** $-5x^3 + 3x^2 - 29x + 12$ **D.** $-5x^2 + 15x + 12$

10. If $f(x) = -4x - 8$ and $g(x) = x^2 - 6x$, which expression is $(f - g)(x)$?

    A. $-x^2 - 10x - 8$ **B.** $-x^2 + 2x - 8$ **C.** $x^2 + 2x - 8$ **D.** $x^2 - 10x - 8$

11. If $f(x) = 4x - 2$ and $g(x) = 2x^2 + 7x + 1$, which expression is $(f - g)(x)$?

    A. $2x^2 + 11x - 1$ **B.** $-2x^2 - 3x - 3$ **C.** $-2x^2 - 3x - 1$ **D.** $-2x^2 + 11x - 3$

12. If $f(x) = -4x + 7$ and $g(x) = -x^2 - 5x - 6$, which expression is $(f \cdot g)(x)$?

    A. $4x^2 + 20x - 42$ **B.** $4x^2 + 13x - 42$ **C.** $4x^3 - 7x^2 - 11x - 42$ **D.** $4x^3 + 13x^2 - 11x - 42$

13. If $f(x) = 5x - 6$ and $g(x) = -x^2 - 2x - 6$, which expression is $(f - g)(x)$?

    A. $x^2 + 7x$ **B.** $-x^2 + 3x - 12$ **C.** $x^2 + 3x$ **D.** $x^2 + 7x - 12$

14. If $f(x) = 4x - 2$ and $g(x) = -2x^2 + x - 1$, which expression is $(f \cdot g)(x)$?

    A. $-8x^3 + 8x^2 - 6x + 2$ **B.** $-8x^2 + 4x + 2$ **C.** $-8x^2 + 8x + 2$ **D.** $-8x^3 + 4x^2 - 6x + 2$

15. If $f(x) = \sqrt{x + 5}$ and $g(x) = x + 1$, what is the domain of $\left(\frac{f}{g}\right)(x)$?

    A. $x \geq -5$, $x \neq -1$ **B.** $x \neq -1$ **C.** $x > -5$, $x \neq -1$ **D.** $x \geq -5$

16. If $f(x) = \log_2 x$ and $g(x) = 4x + 8$, find $f(g(6))$.

    Answer: _____

17. If $f(x) = \sqrt{x - 1}$ and $g(x) = x - 3$, what is the domain of $\left(\frac{f}{g}\right)(x)$?

    A. $x \neq 3$ **B.** $x \geq 1$, $x \neq 3$ **C.** $x > 1$, $x \neq 3$ **D.** $x \geq 1$

18. If $f(x) = \log_2 x$ and $g(x) = 2x$, find $f(g(4))$.

    Answer: _____

19. If $f(x) = \log_2 x$ and $g(x) = 5x - 11$, find $f(g(3))$.

    Answer: _____

20. If $f(x) = \sqrt{x - 5}$ and $g(x) = x + 5$, what is the domain of $\left(\frac{f}{g}\right)(x)$?

    A. $x \geq 5$ **B.** $x \geq -5$ **C.** $x > 5$, $x \neq -5$ **D.** $x \neq -5$

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Answer key · Version X8363

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1. **-78**
2. **19/12**
3. **0**
4. **-3**
5. **-8/9**
6. **3**
7. **18**
8. **A ($-2x^2 + 5x - 10$)**
9. **A ($-5x^3 + 18x^2 - 29x + 12$)**
10. **B ($-x^2 + 2x - 8$)**
11. **B ($-2x^2 - 3x - 3$)**
12. **D ($4x^3 + 13x^2 - 11x - 42$)**
13. **A ($x^2 + 7x$)**
14. **A ($-8x^3 + 8x^2 - 6x + 2$)**
15. **A (x ≥ −5, x ≠ −1)**
16. **5**
17. **B (x ≥ 1, x ≠ 3)**
18. **3**
19. **2**
20. **A (x ≥ 5)**

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