

Algebra 2
Quiz 5.6-5.7

NAME _____

Write the letter for the best answer.

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

1. $f(g(7))$

- A. 10
- B. 145
- C. 7
- D. 40

2. $g(f(-3))$

- A. -20
- B. 25
- C. 247
- D. -239

3. $g(g(-5))$

- A. 367
- B. -7
- C. -17
- D. \emptyset

4. $f(f(-1))$

- A. 2376
- B. -6
- C. 151
- D. 0

Answer the following.

5. $f(x) = 4x - 2$, $g(x) = 5x + 1$. Find $(f(g(x)))$

- A. $20x + 2$
- B. $20x + 6$
- C. $20x - 9$
- D. $20x - 11$

6. $f(x) = 5x + 3$, $g(x) = -2x + 2$. Find $(g(f(x)))$

- A. $-10x + 13$
- B. $-10x + 7$
- C. $-10x - 8$
- D. $-10x - 4$

7. $f(x) = 3x^2$, $g(x) = x - 2$. Find $(f(g(x)))$

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

8. $f(x) = 2x + 5$, $g(x) = 3x - 3$. Find $(f(f(x)))$

- A. $4x + 10$
- B. $4x + 15$
- C. $6x + 12$
- D. $6x + 15$

9. $f(x) = 2x^{-1}$, $g(x) = 5x - 8$. Find $(f(g(x)))$

- A. $\frac{1}{10x-16}$
- B. $-10x + 16$
- C. $\frac{2}{5x-8}$
- D. $\frac{10x}{-16}$

10. $f(x) = 9x - 7$, $g(x) = \sqrt{x + 11}$. Find $(g(f(x)))$

- A. $\sqrt{9x + 4}$
- B. $3x + 2$
- C. $\sqrt{9x - 4}$
- D. $2\sqrt{3x}$

Find the inverse of each function.

11. $f(x) = 3x + 9$

A. $f(x)^{-1} = 3y + 9$

B. $f(x)^{-1} = x + 3$

C. $f(x)^{-1} = \frac{x+9}{3}$

D. $f(x)^{-1} = \frac{x-9}{3}$

12. $f(x) = \frac{3}{4}x - 12$

A. $f(x)^{-1} = \frac{4}{3}x + 16$

B. $f(x)^{-1} = \frac{x+12}{\frac{3}{4}}$

C. $f(x)^{-1} = \frac{3}{4}x - 9$

D. $f(x)^{-1} = \frac{4}{3}x - 12$

13. $f(x) = \sqrt{x-4}$

A. $f(x)^{-1} = 2x - 16$

B. $f(x)^{-1} = x^2 - 4$

C. $f(x)^{-1} = x^2 + 4$

D. $f(x)^{-1} = 2x - 8$

14. $f(x) = 5x - 10$

A. $f(x)^{-1} = \frac{x-10}{5}$

B. $f(x)^{-1} = \frac{x+10}{5}$

C. $f(x)^{-1} = x + 2$

D. $f(x)^{-1} = x - 2$

Determine whether the functions are inverse functions.

15. $f(x) = \frac{x+8}{4}$, $g(x) = 4x + 8$

A. *Yes*

B. *No*

16. $f(x) = \sqrt{x+3}$, $g(x) = x^2 - 3$

A. *Yes*

B. *No*