

A2.A.42: Compositions of Functions 3: Find the composition of functions

- 1 If $f(x) = 2^x - 1$ and $g(x) = x^2 - 1$, determine the value of $(f \circ g)(3)$.
- 2 If $f(x) = 5x^2 - 1$ and $g(x) = 3x - 1$, find $g(f(1))$.
- 3 If $f(x) = \log_2 x$ and $g(x) = 2x^2 + 14$, determine the value of $(f \circ g)(5)$.
- 4 If $f(x) = x^2 + 4$ and $g(x) = 2x + 3$, find $f(g(-2))$.
- 5 If $f(x) = 3x + 1$ and $g(x) = x^2 - 1$, find $(f \circ g)(2)$.
- 6 If $h(x) = 2x - 1$ and $g(x) = 3x + 1$, what is the value of $(h \circ g)(2)$?
- 7 If $f(x) = x - 3$ and $g(x) = x^2$, what is the value of $(f \circ g)(2)$?
- 8 If $f(x) = 5x - 2$ and $g(x) = \sqrt[3]{x}$, evaluate $(f \circ g)(-8)$.
- 9 If $f(x) = x^2$ and $g(x) = x + 1$, what is $(f \circ g)(2)$?
- 10 If $f(x) = x - 2$ and $g(x) = x^2$, find $f(g(3))$.
- 11 If $f(x) = x^2$ and $g(x) = 2x - 1$, find $(f \circ g)(4)$.
- 12 If $f(x) = \frac{2}{\sqrt{5-x^2}}$ and $g(x) = x + 1$, evaluate $(f \circ g)(0)$.
- 13 If $f(x) = 2x + 4$ and $g(x) = x^2 + 1$, find $(f \circ g)(3)$.
- 14 If $f(x) = 2x - 5$ and $g(x) = \sqrt{x}$, evaluate $(f \circ g)(36)$.
- 15 If $f(x) = x^2 + 3$ and $g(x) = x - 2$, find $(f \circ g)(2)$.
- 16 If $f(x) = 2x + 1$ and $g(x) = x^2$, find $(g \circ f)(2)$.
- 17 If $f(x) = \frac{x^3}{3}$ and $g(x) = \sqrt[3]{x}$, find $f(g(9))$.
- 18 If $f(x) = x^3 + 1$ and $g(x) = x + 4$, find $(f \circ g)(-6)$.
- 19 If $f(x) = 3x + 2$ and $g(x) = x^2 - 5$, find the value of $(f \circ g)(-3)$.
- 20 If $f(x) = x^2 - 6$ and $g(x) = 2^x - 1$, determine the value of $(g \circ f)(-3)$.
- 21 A certain drug raises a patient's heart rate, $h(x)$, in beats per minute, according to the function $h(x) = 70 + 0.2x$, where x is the bloodstream drug level, in milligrams. The level of the drug in the patient's bloodstream is a function of time, t , in hours, according to the formula $g(t) = 300(0.8)^t$. Find the value of $h(g(4))$, the patient's heart rate in beats per minute, to the *nearest whole number*.

A2.A.42: Compositions of Functions 3: Find the composition of functions**Answer Section**

1 ANS:
255

REF: 060322b

2 ANS:
11

REF: 010621b

3 ANS:
6

REF: 060725b

4 ANS:
5

REF: 060921b

5 ANS:
10

REF: 011021b

6 ANS:
13

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7 ANS:
1

REF: 019710siii

8 ANS:
-12

REF: 069715siii

9 ANS:
9

REF: 089709siii

10 ANS:
7

REF: 089802siii

11 ANS:
49

REF: 089907siii

12 ANS:
1

REF: 010106siii

13 ANS:
24

REF: 060105siii

14 ANS:
7

REF: 080105siii

15 ANS:
3

REF: 010211siii

16 ANS:
25

REF: 060207siii

17 ANS:
3

REF: 080208siii

18 ANS:
-7

REF: 010311siii

19 ANS:
14

REF: 060305siii

20 ANS:
7. $f(-3) = (-3)^2 - 6 = 3$. $g(x) = 2^3 - 1 = 7$.

REF: 061135a2

21 ANS:
95

REF: 060526b