

F.IF.A.2: Functional Notation 2

- 1 If $f(x) = (2x)^2$, find $f(-4)$.
- 2 If $f(x) = x^2 - 3x$, find $f(-1.8)$.
- 3 If $f(x) = -2x^2 + 6$, find the value of $f(-3)$.
- 4 If $f(x) = 3 - x^2$, find $f(-2)$.
- 5 If $f(x) = x^2 - 2x + 3$, find the value of $f(-2)$.
- 6 If $f(x) = x^2 + 3x - 5$, find the value of $f(3)$.
- 7 If $f(x) = x^3 - 2x$, find $f(-2)$.
- 8 If $f(x) = 2x^3 + 4x^2$, find $f(-3)$.
- 9 If $f(x) = \sqrt{25 - x^2}$, find $f(3)$.
- 10 If $f(x) = \sqrt{29 - x^2}$, find $f(-2)$.
- 11 If $f(x) = 3x - 4$ and $g(x) = x^2$, find the value of $f(3) - g(2)$.
- 12 Given that $f(x) = 2x + 1$, find $g(x)$ if $g(x) = 2[f(x)]^2 - 1$.
- 13 A population of wolves in a county is represented by the equation $P(t) = 80(0.98)^t$, where t is the number of years since 1998. Predict the number of wolves in the population in the year 2008.
- 14 The equation to determine the weekly earnings of an employee at The Hamburger Shack is given by $w(x)$, where x is the number of hours worked.
$$w(x) = \begin{cases} 10x, & 0 \leq x \leq 40 \\ 15(x - 40) + 400, & x > 40 \end{cases}$$
Determine the difference in salary, *in dollars*, for an employee who works 52 hours versus one who works 38 hours. Determine the number of hours an employee must work in order to earn \$445. Explain how you arrived at this answer.
- 15 If $g(x) = \left(ax\sqrt{1-x}\right)^2$, express $g(10)$ in simplest form.

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Answer Section

1 ANS:
64

REF: 069801siii

2 ANS:
8.64

REF: 019904siii

3 ANS:
-12

REF: 088603siii

4 ANS:
-1

REF: 068602siii

5 ANS:
11

REF: 088501siii

6 ANS:
13

REF: 018701siii

7 ANS:
-4

REF: 068702siii

8 ANS:
-18

REF: 010303siii

9 ANS:
4

REF: 069601siii

10 ANS:
5

REF: 060102siii

11 ANS:
1

REF: 080001siii

12 ANS:

$$g(x) = 2(2x + 1)^2 - 1 = 2(4x^2 + 4x + 1) - 1 = 8x^2 + 8x + 2 - 1 = 8x^2 + 8x + 1$$

REF: 061625ai

13 ANS:

$$65. P(10) = 80(0.98)^{10} \approx 65$$

REF: 060721b

14 ANS:

$$\begin{array}{rcl} w(52) - w(38) & 15(x - 40) + 400 = 445 & \text{Since } w(x) > 400, x > 40. \text{ I substituted 445 for } w(x) \text{ and solved} \\ 15(52 - 40) + 400 - 10(38) & 15(x - 40) = 45 & \\ 180 + 400 - 380 & x - 40 = 3 & \\ 200 & x = 43 & \end{array}$$

for x .

REF: 061534ai

15 ANS:

$$g(10) = \left(a(10)\sqrt{1-10} \right)^2 = 100a^2(-9) = -900a^2$$

REF: 061333a2