

Evaluating Piecewise Functions WS

Name Triston

Evaluate $f(x) = \begin{cases} 3x - 1, & x < 4 \\ 2x + 7, & x \geq 4 \end{cases}$ for the given value of x .

1. $x = 10$ $2(10) + 7 = \boxed{27}$

3. $x = 4$ $2(4) + 7 = \boxed{15}$

2. $x = -\frac{1}{3}$ $3(-\frac{1}{3}) - 1 = -1 - 1 = \boxed{-2}$

4. $x = -2$ $3(-2) - 1 = \boxed{-7}$

Evaluate the function for the given value of x .

$$f(x) = \begin{cases} 5x - 1, & x < -2 \\ -x - 9, & -2 \leq x < 3 \\ 2\sqrt{x-3} + 1, & x \geq 3 \end{cases}$$

$$g(x) = \begin{cases} \frac{1}{2}x^2 - 10, & x < 6 \\ -|x - 1|, & x \geq 6 \end{cases}$$

5. $f(-4) = 5(-4) - 1 = \boxed{-21}$

11. $g(6) = -|6 - 1| = \boxed{-5}$

6. $f(-2) = -(-2) - 9 = 2 - 9 = \boxed{-7}$

12. $g(0) = \frac{1}{2}(0)^2 - 10 = 0 - 10 = \boxed{-10}$

7. $f(0) = -0 - 9 = \boxed{-9}$

13. $g(\frac{1}{4}) = \frac{1}{2}(\frac{1}{4})^2 - 10 = \frac{1}{2}(\frac{1}{16}) - 10$
 $= \frac{1}{32} - \frac{320}{32} = \boxed{\frac{-319}{32}}$

8. $f(7) = 2\sqrt{7-3} + 1 = 2\sqrt{4} + 1 = \boxed{5}$

14. $g(10) = -|10 - 1| = \boxed{-9}$

9. $f(1) = -1 - 9 = \boxed{-10}$

15. $g(-4) = \frac{1}{2}(-4)^2 - 10 = 8 - 10 = \boxed{-2}$

10. $f(15) = 2\sqrt{15-3} + 1 = 2\sqrt{12} + 1$
 $= 2 \cdot 2\sqrt{3} + 1 = \boxed{4\sqrt{3} + 1}$

16. $g(-10) = \frac{1}{2}(-10)^2 - 10 = 50 - 10 = \boxed{40}$

Answers: 1) 27 2) -2 3) 15 4) -7 5) -21 6) -7 7) -9 8) 5 9) -10 10) $4\sqrt{3} + 1$ 11) -5 12) -10 13) $-\frac{319}{32}$ 14) -9 15) -2 16) 40