

Warm-up:

Evaluate the expression for the given value of x .

Ex. 1: $y = 3x + 2$, when $x = 5$

$$\begin{aligned} y &= 3(5) + 2 \\ y &= 15 + 2 \\ y &= 17 \end{aligned}$$

Ex. 2: $y = x^2 - 4x + 2$, when $x = -3$

$$\begin{aligned} (-3)^2 - 4(-3) + 2 \\ -3 \cdot -3 \quad 9 + 12 + 2 \\ y = 23 \end{aligned}$$

Function Notation: a way to name functions & it gives instructions

$f(x)$
"f of x"

$$y = x^2 - 4x + 2$$

$$\underline{f(x)} = \boxed{y}$$

$f(5)$
"f of 5"

instruction \rightarrow

$$\begin{aligned} f(x) &= x^2 - 4x + 2 \\ f(-3) &= (-3)^2 - 4(-3) + 2 \\ &= 9 + 12 + 2 \\ f(-3) &= 23 \end{aligned}$$

If $f(x) = 3x + 2$ and $g(x) = 2x + 7$ find the value.

Ex. 3: $f(5)$

$$\begin{aligned} f(x) &= 3x + 2 \\ f(5) &= 3(5) + 2 \\ f(5) &= 15 + 2 \\ f(5) &= 17 \end{aligned}$$

Ex. 4: $f(3)$

$$\begin{aligned} f(x) &= 3x + 2 \\ f(3) &= 3(3) + 2 \\ f(3) &= 9 + 2 \\ f(3) &= 11 \end{aligned}$$

① Which function?

② Write the function

③ Follow instructions

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

Ex. 5: $f(-4)$

$$f(x) = 4x - 5$$

$$f(-4) = 4(-4) - 5$$

$$f(-4) = -16 - 5$$

$$f(-4) = -21$$

Ex. 6: $g(-3)$

$$g(x) = x^2 + 5x$$

$$g(-3) = (-3)^2 + 5(-3)$$

$$g(-3) = 9 - 15$$

$$g(-3) = -6$$

Ex. 7: $f\left(\frac{1}{2}\right)$

$$f(x) = 4x - 5$$

$$f\left(\frac{1}{2}\right) = 4\left(\frac{1}{2}\right) - 5$$

$$f\left(\frac{1}{2}\right) = 2 - 5$$

$$f\left(\frac{1}{2}\right) = -3$$

Ex. 8: $g(4.2)$

$$g(x) = x^2 + 5x$$

$$g(4.2) = (4.2)^2 + 5(4.2)$$

$$17.64 + 21$$

$$g(4.2) = 38.64$$

Ex. 9: $f\left(\frac{1}{3}\right)$

$$f(x) = 4x - 5$$

$$f\left(\frac{1}{3}\right) = 4\left(\frac{1}{3}\right) - 5$$

$$\frac{4}{3} - 5$$

$$f\left(\frac{1}{3}\right) = -\frac{11}{3}$$

Ex. 10: Choose four values for x to make a function table for $f(x) = -2x + 5$.

Domain	Rule	Range
x	$f(x) = -2x + 5$	$f(x)$
-3	$f(-3) = -2(-3) + 5$ $6 + 5$	11
0	$f(0) = -2(0) + 5$ $0 + 5$	5
1	$f(1) = -2(1) + 5$ $-2 + 5$	3
2	$f(2) = -2(2) + 5$ $-4 + 5$	1