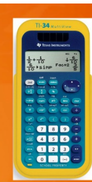
# MS Algebra: 2.1.2



* Warm-Up
* Any ?s on HW: page 259 #7-9, 11-19
* Goal: I can understand function notation and that a function is a relationship between an independent and dependent variable.
* HW: 2.1.2 Worksheet

# Warm-Up

If $x = 3$, evaluate $2x - 9$.

$2 \cdot 3 - 9$

$6 - 9 = -3$

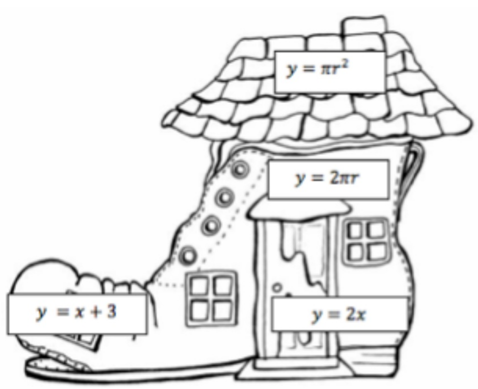
If $x = -4$, evaluate $x^2 + 3$.

$(-4)^2 + 3$

$16 + 3$

$19$

There was an old woman who lived in a shoe.
She had so many children, she didn't know what to do…
All her children were named "*y*", so when she called them to lunch,
She'd call out "*y*" and all the children would come in a bunch.
But when she wanted just one child to come with to the store
If she called out "*y*", all the children rushed to the door.




What to do the old woman thought?
She gave them new names and that helped a lot!

$y = \pi r^2 \Longrightarrow a(r) = \pi r^2$

$y = 2\pi r \Longrightarrow c(r) = 2\pi r$

$y = x + 3 \Longrightarrow f(x) = x + 3$

$y = 2x \Longrightarrow d(x) = 2x$

$y = -7x + 8 \Longrightarrow p(x) = -7x + 8$

**Function notation** is used to rename each equation. The area of a circle is represented by $a(r) = \pi r^2$

The name of the function is: a. $a(r)$ is read a of r.

The input of the function is: r, which represents the radius.

The output of the function is: a(r), which represents the area of the circle $\pi r^2$.

To find the area of a circle with a radius of 10, we would change the input of $r$ to 10.

Evaluate $a(10)$. $= \pi \cdot 10^2$

$a(10) = 314$

If a circle has a radius of 10, then the area of the circle is 314.

Use a table to evaluate each function for the given $x$ values.

$f(x) = x + 3$ Name of function: f input: x

| $x$ | Evaluate: $x + 3$ | $f(x)$ |
|---|---|---|
| 3 | $f(3) = 3+3 = 6$ | $f(3)=6$ |
| 0 | $f(0) = 0+3 = 3$ | $f(0)=3$ |
| -7 | $f(-7) = -7+3$ | $f(-7)=-4$ |

$g(x) = 2x$ Name of fcn: g input: x

| $x$ | Evaluate: $2x$ | $g(x)$ |
|---|---|---|
| 3 | $g(3) = 2(3) = 6$ | $g(3)=6$ |
| 0 | $g(0) = 2(0) = 0$ | $g(0)=0$ |
| -7 | $g(-7) = 2(-7) = -14$ | $g(-7)=-14$ |

Evaluate each function for the indicated value. Show your work.

$h(x) = -2x + 7$

$h(2) =$ 3

$h(2) = -2 \cdot 2 + 7 = -4 + 7 = 3$

$h(-1) =$ 9

$h(-1) = -2(-1) + 7 = 2 + 7 = 9$

$m(x) = 2x^2 - 3.$

$m(4) =$ 29

$m(4) = 2 \cdot 4^2 - 3 = 2 \cdot 16 - 3 = 32 - 3 = 29$

$m(-2) =$ 5

$m(-2) = 2(-2)^2 - 3 = 2 \cdot 4 - 3 = 8 - 3 = 5$

Function notation is also handy when more than one equation is graphed on the same coordinate plane. You can just label the graphs with the function name instead of the whole equation.

Use the graph of $f(x)$ and $g(x)$ to: input

Find $f(2)$ 4

input is 2 x = 2 what is the output?

Explain $f(2)$ in context of the problem.

In 2 hours the height of the ball is 4 feet

Find $g(5)$ 8

input = 5 x = 5 what is the output?

Explain $g(5)$ in context of the problem.

In 5 hours, the height of the ball is 8 ft.