Function Notation

- Function Notation is how we read functions

- "f(x)" is pronounced "f of x", but means "when x is input into the function 'f'..."

*It is very important you have the DEPTH of understanding on this topic...will be tested!* 

\[ f(x) = 2x + 1 \]

- \( x \) \: input or domain represents an unknown value
- \( f \) \: function name; tells me which function to use if there is more than one
- \( 2x+1 \) \: function rule or where we input the x-value to get the output

output = y \quad f(x) = output \quad f(x) = y
\[ f(x) = -3x - 2 \]

When \( x \) is input into function "f", the output will be \(-3x - 2\).

\[ f(x) = 2x + 1 \]

\[ f(2) = 2(2) + 1 \]

\[ f(2) = 5 \]

...The answer is 5, but understand that \( f(2) = 5 \) is the same thing as \((2,5)\)!

*Whenever you input a value into something else, put it in parenthesis!

When 2 is input into function 'f' with the rule '2x+1', the output is 5.
\[ f(x) = 3x + 4 \quad g(x) = -x - 2 \]
\[
g(-4) = -1(-4) - 2 = 4 - 2
\]
\[ g(-4) = \boxed{2} \]
\[ (-4, 2) \]
\[
f(-2) = 3(-2) + 4 = -6 + 4
\]
\[ f(-2) = \boxed{2} \]
\[ (-2, -2) \]
\[
f(x) = 3x - 5 \quad g(x) = -2x + 3 \]
\[
g(1) = -2(1) + 3 = -2 + 3
\]
\[ g(1) = \boxed{1} \]
\[ (1, 1) \]
\[
f\left(\frac{1}{3}\right) = 3\left(\frac{1}{3}\right) - 5 = 1 - 5
\]
\[ f\left(\frac{1}{3}\right) = \boxed{-4} \]
\[ \left(\frac{1}{3}, -4\right) \]
Given that \( f(x) = 2x^2 + 2 \) and \( g(x) = 3x - 1 \), find:
1. \( f(-3) = \)
2. \( g(1) = \)
3. \( f(4) = \)

Given that \( f(x) = -4x^2 - 3x - 7 \) and \( g(x) = x^2 - 5x + 2 \), find:
4. \( g(-3) = \)
5. \( f(-1) = \)
6. \( g(2) = \)

Given that \( f(x) = 2x + 6 \) and \( g(x) = -7x + 4 \), find:
7. \( g(2) = \)
8. \( f(19) = \)
9. \( g(-1) = \)
Given that \( f(x) = 2x^2 + 2 \) and \( g(x) = 3x - 1 \), find:

1. \( f(-3) = 20 \) 
2. \( g(1) = 2 \) 
3. \( f(4) = 34 \)

Given that \( f(x) = -4x^2 - 3x - 7 \) and \( g(x) = x^2 - 5x + 2 \), find:

4. \( g(-3) = 26 \) 
5. \( f(-1) = -8 \) 
6. \( g(2) = -4 \)

Given that \( f(x) = 2x + 6 \) and \( g(x) = -7x + 4 \), find:

7. \( g(2) = -10 \) 
8. \( f(19) = 44 \) 
9. \( g(-1) = 11 \)