

Which of the following are prime numbers?

89, ~~91~~, ~~93~~, ~~95~~, 97, ~~99~~

Answer: 89 and 97

MCR 3U  
1.2

# Function Notation

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We need a quick way to indicate inputs and outputs in functions.

x	y
2	4
3	6
4	8
5	10

$$y = 2x \quad f(x) = 2x$$

$f(x)$  means the y-value at that specific x-value.  
"f of x"

## Example 1

eg. Consider the function

$$g = \{(1,4), (3,6), (7,2), (8,7), (9,6)\}$$

a)  $g(3)$  what is the y-value when  $x=3$   
 $g(3) = 6$

b)  ~~$g(6) =$~~   
 $g(9) =$

c) What is x, if  $g(x) = 4$ ?  $x = 1$

d) What is x, if  $g(x) = 6$ ?  $x = 3$  OR  $x = 9$

# Function Notation and Equations

Consider the function:  $y = 3x + 2$

If  $x = 5$ , then what is the output?

$$\begin{aligned} f(x) &= 3x + 2 & f(0) &= 3(0) + 2 \\ f(5) &= 3(5) + 2 & f(0) &= 0 + 2 \\ &= 17 & &= 2 \end{aligned}$$

## Example 2

eg. Consider the function  $g(x) = x^2 + 3x + 1$   
Determine each of the following.

$$\begin{aligned} \text{c) } g(1) + g(2) &= [1^2 + 3(1) + 1] + [2^2 + 3(2) + 1] = 5 + 11 = 16 \\ \text{d) } g(1+2) &= g(3) = 3^2 + 3(3) + 1 = 19 \\ \text{e) } g(@) &= @^2 + 3@ + 1 \\ g(\$) &= \$^2 + 3(\$) + 1 \\ \text{f) } g(y) &= y^2 + 3y + 1 \\ \text{g) } g(6z) &= (6z)^2 + 3(6z) + 1 = 36z^2 + 18z + 1 \\ \text{h) } g(2x+3) &= (2x+3)^2 + 3(2x+3) + 1 \\ &= [4x^2 + 12x + 9] + 6x + 9 + 1 \\ &= 4x^2 + 18x + 19 \\ \text{b) } g(-5) &= (-5)^2 + 3(-5) + 1 = 25 - 15 + 1 = 11 \end{aligned}$$

# Homework

p.22 #

1,~~2~~,5,6,7,13,15

extra #22,23