

Today's Learning Goal(s):

Date: Feb. 23/17
(Every lesson)

By the end of the class, I will be able to:

- a) use function notation to represent linear and quadratic functions.

1.2 Function Notation

Function notation, such as $f(x)$, is used to represent the value of the dependent variable for a given value of the independent variable.

x is often called the input and $f(x)$ is called the output.

$f(x)$ is read "f of x" or "f at x"

Compared to the notation you have been used to, y and $f(x)$ are interchangeable.

Therefore $y = -3x + 4$ can be written as $f(x) = -3x + 4$

or $y = 2(x - 3)^2 + 4$ can be written as $f(x) = 2(x - 3)^2 + 4$

Ex. 1 If $f(x) = -x(x - 6)$ then find:

a) $f(2) = - (2)(2 - 6)$ b) $f(a)$

$$= -2(-4) \quad = -a(a-6)$$

$$= 8$$

$$(2, 8)$$

c) Find x if $f(x) = -16$

$$f(x) = -x(x - 6)$$

$$-16 = -x(x - 6)$$

$$-16 = -x^2 + 6x$$

$$x^2 - 6x - 16 = 0$$

$$(x - 8)(x + 2) = 0$$

$$\therefore x = 8 \text{ or } x = -2$$

$$(8, 16) \quad (-2, 16)$$

Ex. 2 Graph $f(x) = -x(x - 6)$ is the same as...

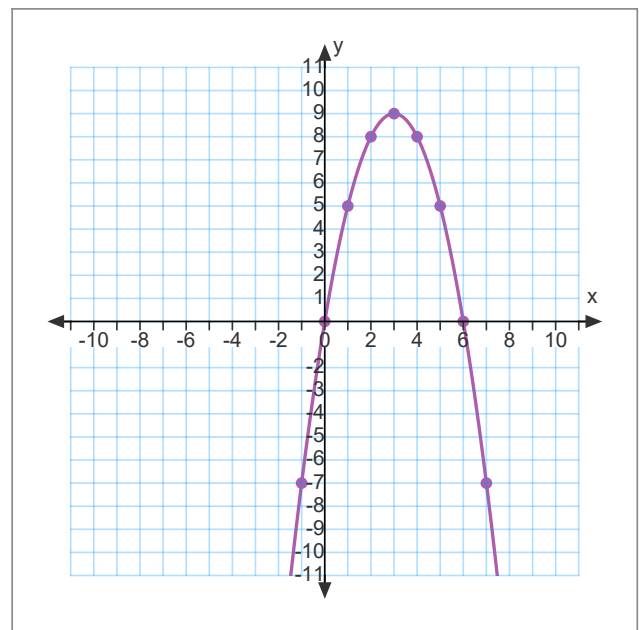
$$y = -x(x - 6)$$

x-intercepts $[f(x)=0]$ A of S:
 let $y=0$
 $0 = -x(x-6)$
 $x=0$ or $x=6$

$x = \frac{0+6}{2} = 3$
 $f(3) = -(3)(3-6) = -3(-3) = 9$
 \downarrow
 $\sqrt{(3, 9)}$

$f(2) = 8$ represents

$$(x, y) \rightarrow (2, 8)$$



Ex. 3 If $f(x) = x^2$ then find $f(x+4)$.

$$\begin{aligned} f(x+4) &= (x+4)^2 \\ &= x^2 + 8x + 16 \end{aligned}$$

Are there any Homework Questions you would like to see on the board?

Last day's work: p. 2 #1-8

READ pp. 5-9

pp. 10-11 #1-3, 6, 7a, 8, 9b

[p.13 #1-3]

pp. 35-36 #1-3, 5

Today's Homework Practice includes:

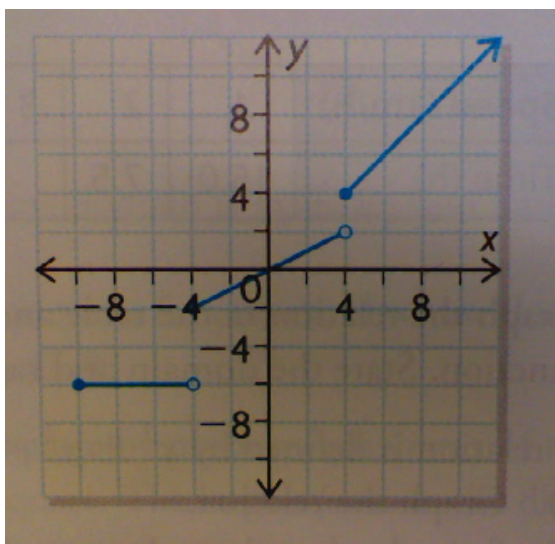
pp. 22-23 #1, 2, 4-7, 9, 10

Funcon Notaon Worksheet #1-6

(answer keys on class website)

p.35 2f)

$$\text{Domain: } \{x \in \mathbb{R} \mid x \geq -10\}$$



$$\text{Range: } \{y \in \mathbb{R} \mid y = -6, -2 \leq y < 2, y \geq 4\}$$