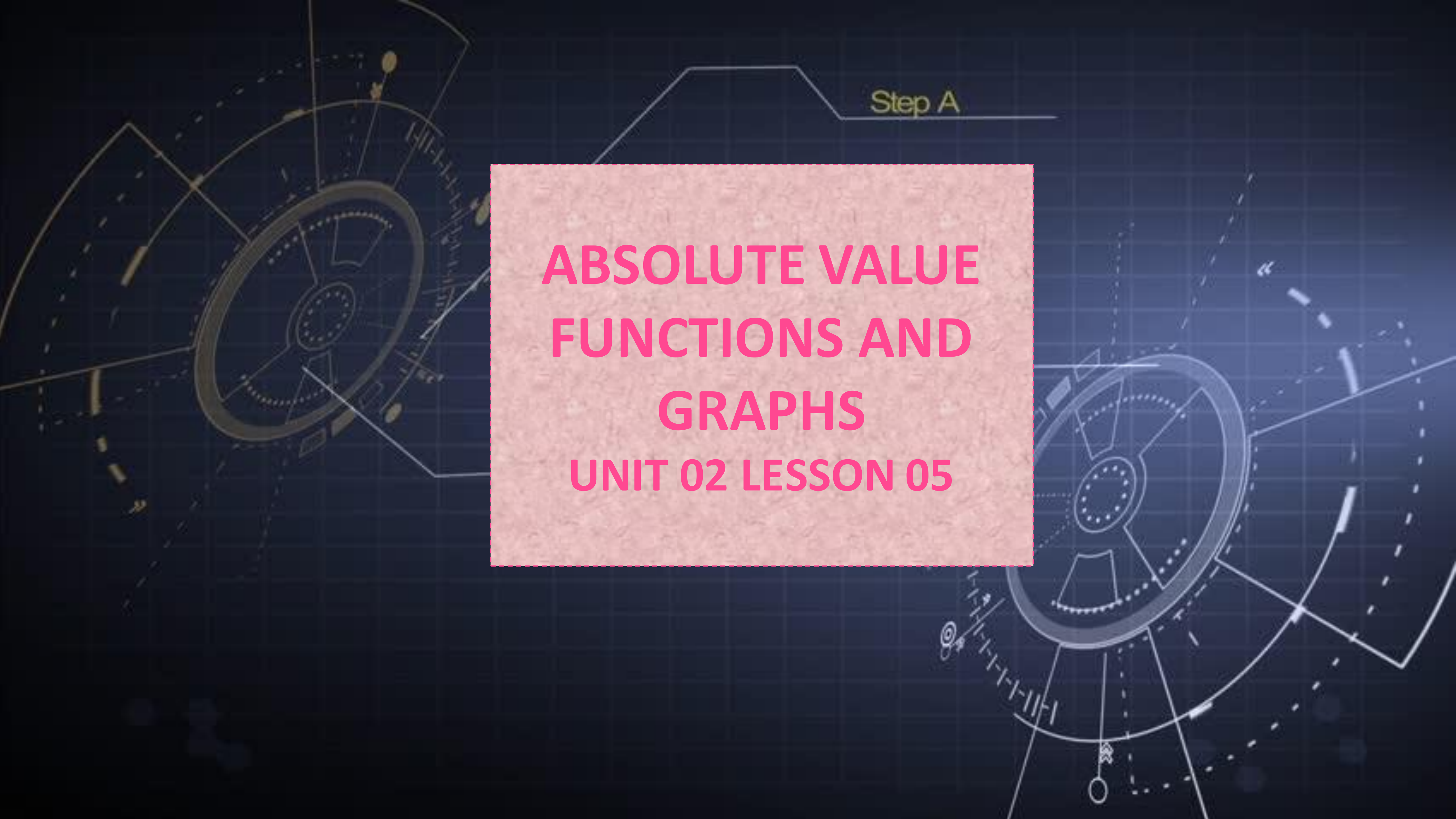
ABSOLUTE VALUE FUNCTIONS AND GRAPHS

UNIT 02 LESSON 05



OBJECTIVES

STUDENTS WILL BE ABLE TO:

Understand how to solve and sketch Absolute Value Functions and Graphs

KEY VOCABULARY:

- Absolute Value Functions and Graphs
- Write absolute value function
- Sketch the graphs from a given absolute value function

ABSOLUTE VALUE FUNCTIONS AND GRAPHS

ABSOLUTE VALUES

‘Absolute value’ means to remove any negative sign in front of a number, and to think of all numbers as positives (or zero)

OR

“the magnitude of a real number without regard to its sign”

ABSOLUTE VALUE FUNCTIONS AND GRAPHS

REPRESENTATION OF ABSOLUTE VALUES

We put “| |” marks either side called bars e.g

$|-9| = 9$ and $|7| = 7$

ABSOLUTE VALUE FUNCTIONS AND GRAPHS

- Absolute value function has a V-shaped graph.
- If we have $|x|$,

It will give the value of x as $|x| = \begin{cases} x\ , & x \geq 0 \\ -x\ , & x < 0 \end{cases}$

- The graph is sketched as
  - Step I: sketch the graph for y=f(x)
  - Step II: Reflect in the x-axis that part of the graph below the x-axis.

ABSOLUTE VALUE FUNCTIONS AND GRAPHS

GENERAL FORM OF GRAPHS

$y = |x - 2| - 4$

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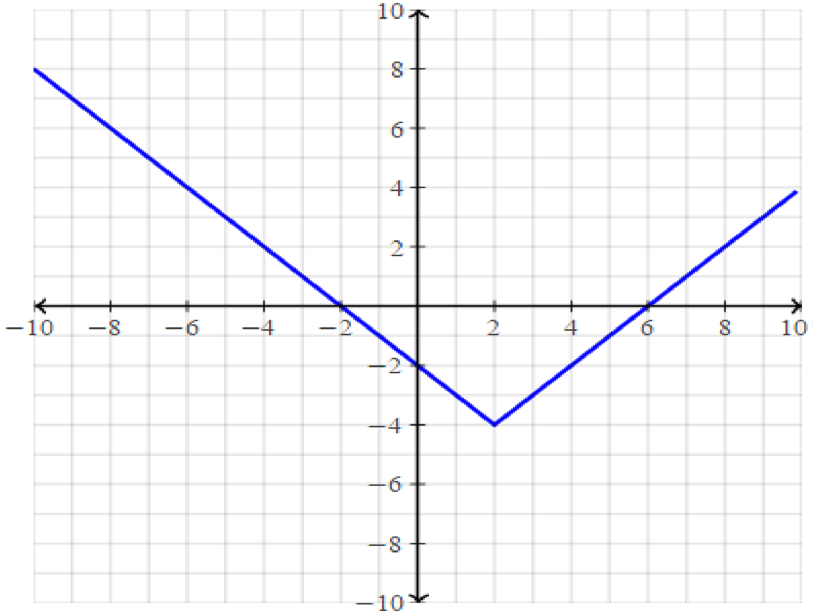

$y = |x + 1|$

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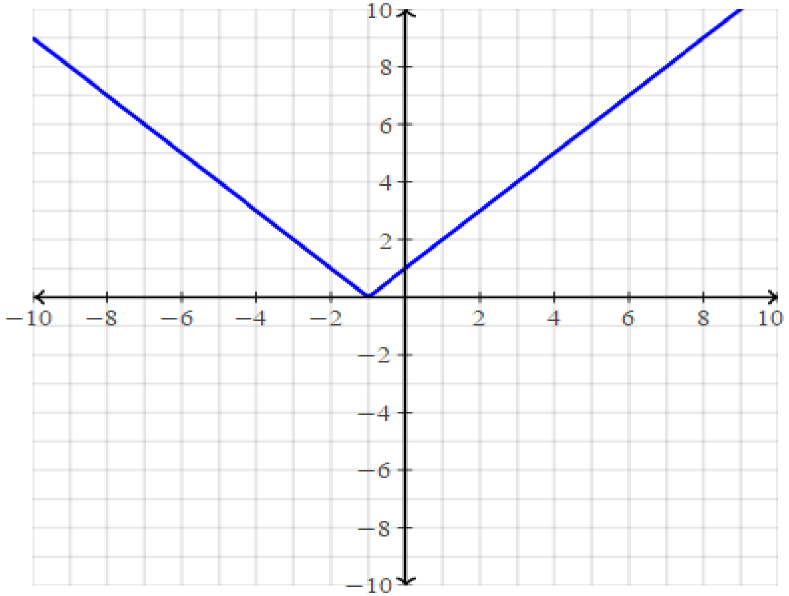

ABSOLUTE VALUE FUNCTIONS AND GRAPHS

PROBLEM 01

Solve the equation

$$|x+1| = 2x - 5$$

$$once|\ \ |\,sigs\ are\ removed \pm is\ added$$

$$x + 1 = \pm(2x-5)$$

$$x + 1 = +(2x-5)$$
$$x - 2x = -5 - 1$$
$$-x = -6$$
$$x = 6$$

$$x + 1 = -(2x-5)$$
$$x + 2x = 5 - 1$$
$$3x = 4$$
$$x = 4/3$$

ABSOLUTE VALUE FUNCTIONS AND GRAPHS

PROBLEM 02

Sketch the graph using following equation

$$|x| + 2$$

ABSOLUTE VALUE FUNCTIONS AND GRAPHS

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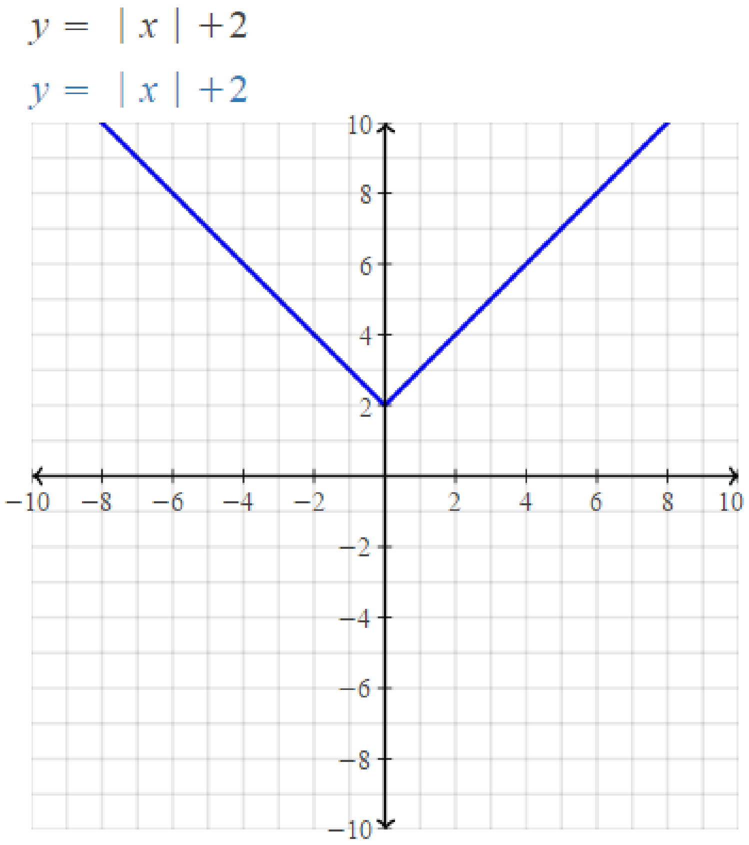
Sketch the graph using following equation

$$|x| + 2$$



ABSOLUTE VALUE FUNCTIONS AND GRAPHS

PROBLEM 03

If f(x)=$|x-2|$find f(-5)

Now to find the value of f(-5), we need to put the value of x as -5.

f(-5)= $|-5-2|$

$= |-7|$

$= 7$