

WELCOME TO ENGLISH CLASS



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HOW ARE
YOU?



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WELCOME TO ENGLISH CLASS



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ZOE QUINN

**ALGORITHMS
ARE NOT
ARBITERS OF
OBJECTIVE
TRUTH AND
FAIRNESS SIMPLY
BECAUSE
THEY'RE MATH.**

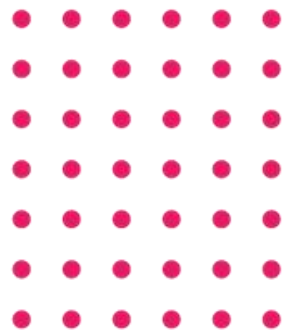
QUOTEANNER.COM



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ALGORITHMS



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$[a + b]$ $\pi = 3.14$ $A = \frac{ab + c}{d}$ $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ $E = mc^2$
 $x = \sqrt{c + 25} - 8$ $a^2 + b^2 = c^2, c = \sqrt{a^2 + b^2}$ $a^2 = 2ab + b^2 = (a^2 + b^2)$
 $\sum f(a + b) = c$ $(x + y)^2 - (x - y)^2$ $Me = \left[\frac{\frac{a}{2} - \frac{b}{5}}{x} \right]$
 $y = \begin{cases} x + 3y + 2c = 1 \\ 2x + 6y + 5z = 38 \\ x + 2y + 10z = 2 \end{cases}$ $Z = Y + 4$ $\frac{a}{c} = \frac{HB}{a}$ $Me = X + \left[\frac{\frac{n}{B} - Z}{g} \right]$
 π η $\sqrt{\frac{X}{X}} = C$ $X + Y = 3$ $2 + X^2 Y$

DATE



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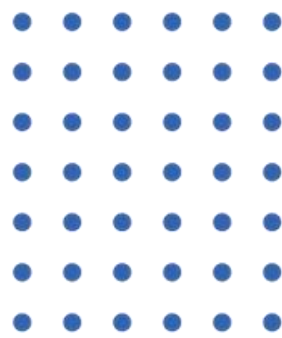
DATE

Objective:

Students will demonstrate their understanding of the topic Algorithms with a graphic organizer.



AGENDA



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WARM UP:

Find Max

CLASS ACTIVITY:

Let's practice the class vocabulary

Complete the sentences with the correct option

Reading strategy (video) : Previewing and predicting

Read the Text "What makes a good algorithm?"

Wrap- Up

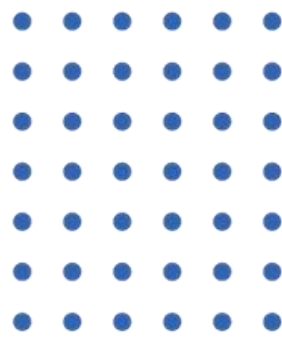
Complete this multiple-choice exercise to check their understanding of the text.



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WARM-UP



“Find Max”

Choose the largest number from the list.

Example:

Set 1

five thousand

seven hundred and twenty-seven

three million

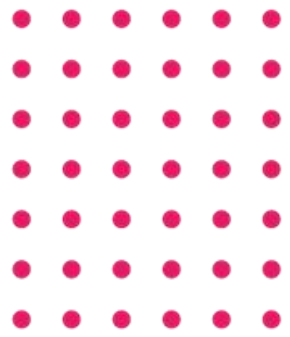
eighty-eight point seven

twelve thousand four hundred and
seventeen

The correct answer in Set 1 is “three million”.



VOCABULARY



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- Steps
- Perform
- Recipe
- Unambiguous
- Set of inputs
- Set of outputs
- Useful
- Return

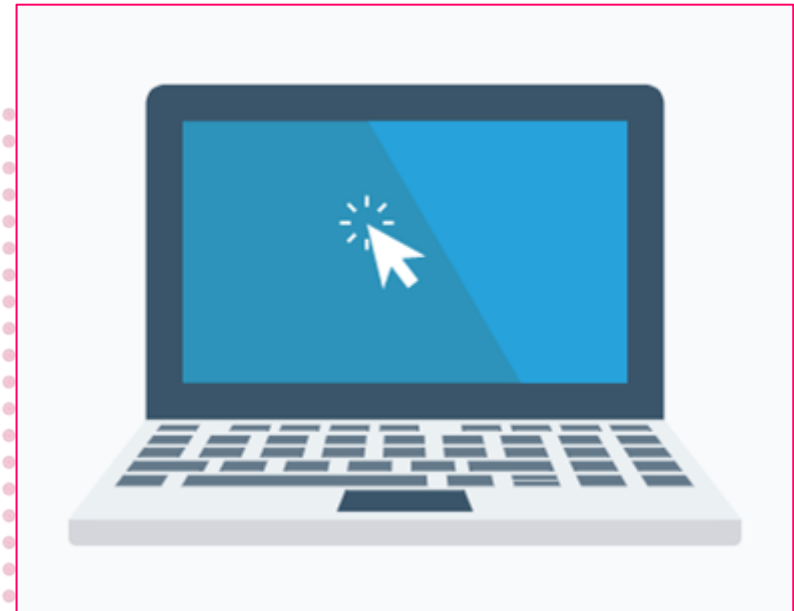


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Select the correct option to complete the sentences with the new words.

- Today, a cellphone can perform/return many functions of a computer.
- English is a very unambiguous/useful language because there is a lot of information in English.
- A set of inputs/outputs is the result of an algorithm.
- I don't know how to cook ajiaco, so I need to look for a recipe/output.
- This program returns/performs an error message. I need to find the error and correct it.



Video Reading Strategy



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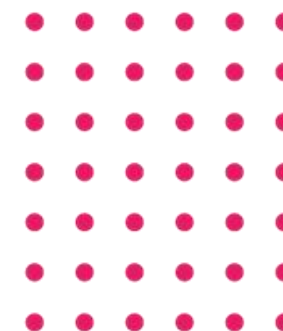
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<https://www.youtube.com/watch?v=5g3dY0Sfntl>



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Algorithm VS Recipe

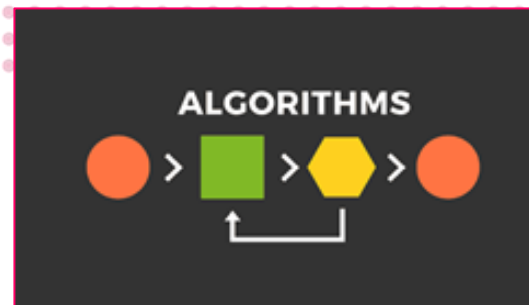
- An algorithm specifies a series of steps that perform a particular computation. Algorithms are similar to recipes. Recipes tell you how to cook food by completing a number of steps. For example, to make a cake the steps are:
 1. preheat the oven;
 2. mix flour, sugar, and eggs;
 3. pour into a baking pan;
 4. etc.
- But “algorithm” is a technical term and it is more specific than “recipe”.



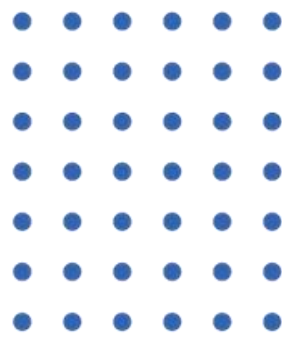
Characteristics of an algorithm



- If you call something “an algorithm”, it means that these characteristics are all true:
- 1. An algorithm is an unambiguous description that makes clear what to implement. In a computational algorithm, a step such as “Select a large number” is not clear: what is “large”? 1 million, 1 billion, or 100?
- 2. An algorithm expects a defined set of inputs.
- 3. An algorithm produces a defined set of outputs.
- 4. An algorithm is guaranteed to terminate and produce a result. If an algorithm could potentially be eternal and run forever, it wouldn’t be very useful because you might never get a result.
- 5. The majority of algorithms are guaranteed to produce the correct result.



An Example Algorithm find_max()



Problem: From a list of positive numbers, return the largest number on the list.

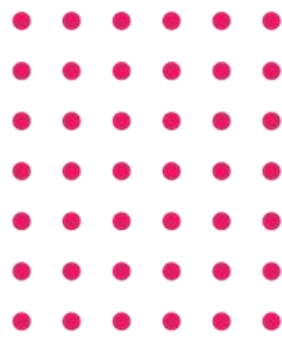
Inputs: A list L of positive numbers. This list must contain at least one number.

Outputs: A number n, which will be the largest number of the list.

Algorithm:

- ☐ Set max to 0.
- ☐ For each number x in the list L, compare it to max. If x is larger, set max to x.
- ☐ max is now set to the largest number in the list.

An implementation in Python:



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```
def find_max (L):  
    max = 0  
    for x in L:  
        if x > max:  
            max = x  
    return max
```

Does this meet the criteria for being an algorithm?

- 1. Is it unambiguous? Yes. Each step of the algorithm consists of primitive operations, and translating each step into Python code is very easy.
- 2. Does it have defined inputs and outputs? Yes.
- 3. Is it guaranteed to terminate? Yes. The list L is not infinite, so after looking at every element of the list the algorithm will stop.
- 4. Does it produce the correct result? Yes.

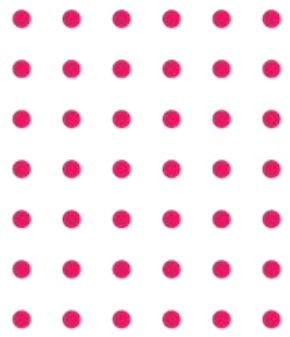
Adapted from: <https://fiftyexamples.readthedocs.io/en/latest/algorithms.html>



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WRAP-UP



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Complete this multiple-choice exercise:

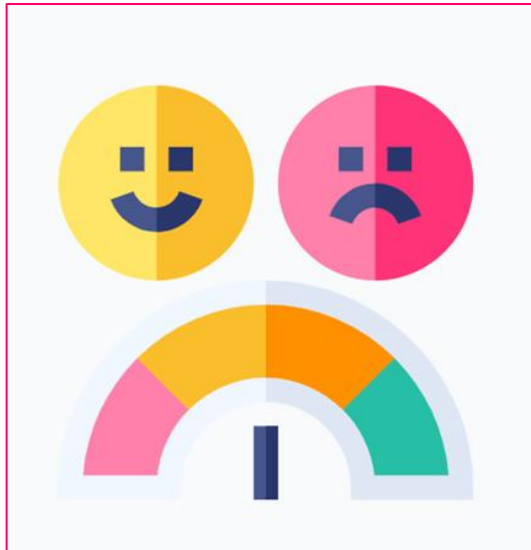
1. The objective of an algorithm is to:
 - a. Perform a computation
 - b. Perform a recipe
2. ... is more specific.
 - a. Recipe
 - b. Algorithm
3. The instruction "Select a large number" is:
 - a. Ambiguous
 - b. Unambiguous
4. An eternal algorithm is:
 - a. Useful
 - b. Useless
5. The objective of "find_max" is:
 - a. To find many numbers
 - b. To find the largest number

SELF-EVALUATION



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1. Entiendo cómo utilizar la estrategia de previsualizar y predecir con un texto.

Yes No Maybe

2. La estrategia de previsualizar y predecir me ayuda a tener una idea general de qué se va a tratar el texto.

Yes No Maybe

3. La estrategia de previsualizar y predecir me ayuda a concentrarme más mientras leo.

Yes No Maybe

4. Cuando previsualicé y predije el texto de esta clase, pude adivinar unos detalles correctamente.

Yes No Maybe