

Can I Learn to Program Test

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First Revision

This test is meant to test a persons ability to think in symbolic terms, and understand simple logic, and is primarily meant to test if children are ready to take on learning a programming language. What is tested here is one's ability to reason in symbolic and abstract terms, which is the characteristic of the formal operational child (typically age 11), however a child may be able to reason in these terms prior to reaching this developmental stage. This test is designed to test those abilities crucial to learning a programming language.

Parents: It is okay to read the written explanation to them, and even try to explain it better, however, don't help them with actually solving the problems (they need to be able to do that on their own). Ideally your child will be able to do all these in their head, without writing anything down, but if it helps, fine.

Symbols 1: Simple math and symbolic assignment.

Variables, like x , y , z act as containers to hold a value, like numbers. In computer programming (C/C++, Java, JavaScript and most other languages), we can assign a value to a variable using the $=$ operator, which is just an equals sign (we call this the assignment operator). So $x=2$, would make x hold the number 2. If x were equal to 2 and y were equal to 2, and we had $z=x+y$, z would now hold 4 ($2+2=4$).

1. Let $x=1$ and $y=2$, what does $x+y$ equal? _____
2. Let $x=3$, $y=4$, and $z=x+y$. What number is now in z ? _____
3. Let: $x=1$, $y=2$, $z=4$

Evaluate the following:

$$z=y+x$$

$$y=z+x$$

Now what value does y hold? _____

New Operators:

$++$ Adds one to a variable

$--$ subtracts one from a variable

So, if x held 0, and we performed $x++$ to it, x would now hold 1.

4. Let: $x=1$
Evaluate: $x++$, $x++$
What does x now hold? _____

5. Let: $x=1$, $y=2$

Evaluate:

$$x++$$

$$y++$$

$$z=x+y$$

$$z--$$

What number does z now hold? _____

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Logical operations:

In programming, we use other operators that allow us to compare two numbers. You'll also use them in math. They are the greater than $>$, less than $<$, and there are a few others. Now, because we use the equal sign for assigning a value to a variable, we need to use a different operator to compare if two numbers are equal, so we use the double-equal sign symbol $==$, which is just two equal signs right next to each other.

Operation	Result
$0 > 1$	False
$1 > 0$	True
$1 == 0$	False
$1 == 1$	True
$0 < 1$	True
$1 < 0$	False

Evaluate the following, and circle the correct answer:

6.	Let $x=2$.	Evaluate: $x > 4$	True	False
7.	Let $x=0$ and $y=2$.	Evaluate: $x < y$	True	False
8.	Let $x=0$ and $y=1$	Evaluate: $x > y$	True	False
	Let $x=1$ and $y=4$ $z=x+y$ $y++$			
9.		Evaluate: $y == z$	True	False
10.		Evaluate: $y == 4$	True	False
11.		Evaluate: $y > 4$	True	False
12.		Evaluate: $x < 4$	True	False

If you got 9 out of 12 of right, without any help, then you're ready to learn how to program in C. After you learn C, you'll be ready for C++, Java, and JavaScript.

So you finished, cool. Guess what? You know know some of the C syntax! And the C syntax is used/borrowed by many modern programming languages, like Java and JavaScript (C++ is C, but with classes and a few key words and operators). This is because the programmers that wrote those languages already knew C, so why not borrow as much as they could from a language they already knew? That is why a lot of programming languages look like C or C++ at first glance.

Answers: 3, 7, 4, 3, 4,
f, t, f, t, f, t, t