

Java Worksheet: Operators

***Arithmetic Operators (+, -, /, %)**

1. What is the result of $7 + 3 * 2$ in arithmetic operations?
2. If $x = 15$ and $y = 4$, what will $x \% y$ return?
3. Calculate the value of $25 - (5 * 4) / 2$.
4. How do you express squaring a number using only the $*$ operator?
5. If $a = 10$ and $b = 3$, what is the result of a / b in integer division?

***Assignment Operators (=, +=, -=, /=, etc.)**

1. If $x = 10$ and we execute $x += 5$, what will the new value of x be?
2. Write an expression using the $*=$ operator to double the value of a variable y .
3. If $z = 20$ and we apply $z -= 7$, what is the final value of z ?
4. How does the $/=$ operator affect a variable when dividing by a number?
5. Explain the difference between $x = x + 2$ and $x += 2$.

Comparison Operators (==, !=, >, <, >=, <=)

1. What will the expression $5 > 3$ evaluate to?
2. If $a = 7$ and $b = 10$, is $a <= b$ true or false?
3. What does the $!=$ operator check for in a comparison?
4. Explain the output of the condition $4 == '4'$
5. What is the result of the condition $x >= 10$ when $x = 10$?

Logical Operators (&&, ||, !)

1. If $\text{true} \ \&\& \ \text{false}$, what will the result of the expression be?
2. Write a condition using $||$ that evaluates to true if either $x > 5$ or $y < 3$.
3. What is the result of $! \text{true}$?
4. How does the $\&\&$ operator handle multiple conditions if the first condition is false?
5. If $a = \text{true}$ and $b = \text{false}$, what is the result of $!(a \ || \ b)$?