**Conditional Statements**

Assignment

# Evaluating Conditional Statements:

Variable Values

|  |  |
| --- | --- |
| Variable | Value |
| a | 1 |
| b | 2 |
| c | 4 |
| d | 8 |
| t | true |
| f | false |

For each conditional statement below, write “if,” “else,” or “none” to indicate which portion of the conditional statement will be executed:

Example:

|  |  |
| --- | --- |
| if (a + d > b \* c) System.out.println("If") else System.out.println("Else");  if (1 + 8 > 2 \* 4) -> if (9 > 8) -> if (true) | if |
| if (a + d > b \* d) System.out.println("If") else System.out.println("Else");  if (1 + 8 > 2 \* 8) -> if (9 > 16) -> if (false) | else |
| if (a > b || t) System.out.println("If") else System.out.println("Else");  if (1 > 2 || true) -> if (false || true) -> if (true) | if |
| if (a > b && (t && f)) System.out.println("If");  if (1 > 2 && (true && false)) -> if (true && (false)) -> if (false) | none |

Answer below:

|  |  |  |
| --- | --- | --- |
| 1 | if (a - b > 0) System.out.println("If") else System.out.println("Else"); |  |
| 2 | if (a + b \* c == a + d) System.out.println("If") else System.out.println("Else"); |  |
| 3 | if (a \* b == c) System.out.println("If") else System.out.println("Else"); |  |
| 4 | if (d – c < c ) System.out.println("If"); |  |
| 5 | if (a + b + c + d == b \* c) System.out.println("If") else System.out.println("Else"); |  |
| 6 | if ((a \* b == b) && (b \* c > d)) System.out.println("If"); |  |
| 7 | if ((t || f) && (t && f)) System.out.println("If"); |  |
| 8 | if ((t || f) && (a + b + c == d) System.out.println("If") else System.out.println("Else"); |  |
| 9 | if (f && (d \* d == 64) && (d > c) && (d \* c \* b \* a < 2 \* b + c + d)) System.out.println("If"); |  |
| 10 | if (b > a - c && d \* d == (a + b + c + d) \* c + c) System.out.println("If"); |  |
| 11 | if (t || (d \* d \* d \* d \* d == 32768)) System.out.println("If") else System.out.println("Else"); |  |
| 12 | if (d – c < c ) System.out.println("If"); |  |
| 13 | if (a \* b + c + d == d + c + b) System.out.println("If); |  |
| 14 | if (true && t) System.out.println("If"); |  |

# Evaluating a Complete Program:

Given the program below, track how each variable is evaluated, note changes to variable values, and indicate the results of conditional statements over the course of the program:

Example:

|  |  |  |
| --- | --- | --- |
| **01** | **public** **class** ConditionalExample1 { | Summary |
| **02** | **public** **static** **void** main(String[] args) { |  |
| **03** | **int** a=1, b=2, c=4, d=8; | a=1, b=2, c=4, d=8 |
| **04** | **if** (b > a - c && d \* d == (a + b + c + d) \* c + c) { | 2>1-4 && 8\*8==15\*4+4  2>-3 && 64==64  true && true  true |
| **05** | a=a+b+c+d; | a=1+2+4+8=15 |
| **06** | } **else** { | skip |
| **07** | a=-a; | skip |
| **08** | } |  |
| **09** | System.*out*.println("a="+a+", b="+b+", c="+c+", d="+d); | a=15, b=2, c=4, d=8 |

Now complete this program's summary:

|  |  |  |
| --- | --- | --- |
| **01** | **public** **class** ConditionalPractice1 { | Summary |
| **02** | **public** **static** **void** main(String[] args) { |  |
| **03** | **int** i=1, j=3, k=6; |  |
| **04** | **if** (2\*j==k && i+j>k) { |  |
| **05** | i=i\*j\*k; |  |
| **06** | } **else** { |  |
| **07** | i=-i; |  |
| **08** | j=j\*k+i; |  |
| **09** | } |  |
| **10** | System.*out*.println("i="+i+", j="+j+", k="+k); |  |
| **11** | **if** (i>j\*k) { |  |
| **12** | j=k+j; |  |
| **13** | k=i+j; |  |
| **14** | } **else** { |  |
| **15** | j=i\*k+j; |  |
| **16** | k=i; |  |
| **17** | } |  |
| **18** | System.*out*.println("i="+i+", j="+j+", k="+k); |  |
| **19** | } |  |
| **20** | } |  |