Proof by Cases

Case 1: $x > 0$

true

if $(x > 0) \lor (x \leq 0 \land y > 100)$

true

if $(x > 0) \lor y > 100$

so both are true

Case 2: $x \leq 0$

false

if $(x > 0) \lor (x \leq 0 \land y > 100)$

false

if $(x > 0) \lor y > 100$

so both still the same

Java Logical Expression

if ($(x > 0) \lor (x \leq 0 \land y > 100)$)

OR : AND

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better: if $(x > 0) \lor y > 100$

(more code)
Proof by Cases

Reasoning by cases can break a complicated problem into easier subproblems. Some philosophers* think reasoning this way is worrisome.

*intuitionists

$1,000,000 Question

Is $P = NP$?

$1,000,000 Question

The answer is on my desk!
(Proof by Cases)