Short Circuit Evaluation
(Teacher Version)

Corresponding Material
Comparison Operators, If Statements

Discussion
A short cut can be made when evaluating boolean expressions. This saves time when running programs and can help avoid error messages. If the result can be determined solely by the first part of a boolean expression, the second part is not evaluated; it is skipped. This works because TRUE or anything evaluates to TRUE regardless of the second value and FALSE and anything evaluates to FALSE regardless of the second value.

true || true = true	false && true = false
true || false = true	false && false = false

Exercise
Imagine that Joyce and Ken are running for office, and you are responsible for counting the ballots. There are two precincts whose ballots haven't been counted yet.

1. Scenario 1: In order for Ken to win the election, he must win both of the remaining precincts. You count the ballots for the first precinct, and Joyce wins it. Do you continue to count the ballots for the second precinct? Why or why not?

No. If Ken didn't win the first precinct, then it doesn't matter whether he won the second precinct. Either way, he loses the election.

2. Scenario 2: In order for Ken to win the election, he must win either one of the remaining precincts. You count the ballots and determine that Ken won the first precinct. Do you count the ballots for the second precinct? Why or why not?

No. Ken only needed to win either precinct. If he won the first precinct, then he will win regardless of whether he won the second precinct or not.

Determine whether the following expressions are true or false. Circle the expressions that use short circuit evaluation.

1. false \|\| true   TRUE

2. false && true   FALSE

3. true \|\| false   TRUE

4. true && false   FALSE