

FIFTH QUIZ

You have 15 minutes from the start of class to complete this quiz. Give partial answers if you can't give complete ones. Read the questions with care; work with deliberate speed. Don't give us more than we ask for. The usual instructions apply. Good luck!

Problem 1 (8 points)

Below is a grammar in which terminal symbols are indicated by this typewriter typeface. PhoneNumber is the starting symbol.

PhoneNumber \rightarrow Local | AreaCode Local

AreaCode \rightarrow 1 (SpecialDigit Digit Digit)

Local \rightarrow Exchange - Number

Exchange \rightarrow SpecialDigit Digit Digit

Number \rightarrow Digit Digit Digit Digit

Digit \rightarrow 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9

SpecialDigit \rightarrow 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9

(a) (6 points) Mark each of the following six sentences "legal" or "illegal" according to this grammar:

1-824-5072

1 (123) 456-7890

1 (310) 173-4344

1 (949) 824-5072

(800) 386-2103

800-2345

(b) (2 points) Draw the parse tree for one of the legal sentences above.

