

Honor Pledge

On my honor, I have neither given nor received any unauthorized aid on this quiz.

By typing your first and last name in the space provided below you are electronically signing to indicate that:

- (1) You are the person who is taking this quiz.
- (2) You read and understood the Honor Pledge and you agree to be bound by it.

Write your answer below:

Xinhao Luo

Clear Use Most Recent Submission

Question 1. (2pts) Consider the expression grammar below.

$$expr \rightarrow expr \ x \ expr \mid expr \ \# \ expr \mid id$$

How many parse trees are there for string `id x id # id x id`?

Select one:

- ☐ 2
- ☐ 1
- ☒ 5
- ☐ 0

Clear Use Most Recent Submission

Question 2. (2pts) Below is a slightly modified version of the grammar from question 1.

$$expr \rightarrow expr \ x \ expr \mid term$$
$$term \rightarrow term \ \# \ id \mid id$$

The following derivation

$$expr \Rightarrow expr \ x \ expr \Rightarrow \underline{term} \ x \ expr \Rightarrow id \ x \ \underline{expr} \Rightarrow id \ x \ \underline{expr} \ x \ \underline{expr}$$
$$\Rightarrow id \ x \ \underline{term} \ x \ \underline{expr} \Rightarrow id \ x \ id \ x \ \underline{expr} \Rightarrow id \ x \ id \ x \ \underline{term} \Rightarrow id \ x \ id \ x \ id$$

is

Select one:

- ☐ rightmost
- ☒ leftmost
- ☐ neither

Clear Use Most Recent Submission

Question 3. (2pts) Consider the following grammar. A , B , and S are the nonterminals. a , b , and c are the terminals. This grammar is a context-free grammar.

$$S \rightarrow abcA$$
$$A \rightarrow aABc \mid abc$$
$$cB \rightarrow Bc$$
$$bB \rightarrow bb$$

Select one:

- ☒ false
- ☐ true

Clear Use Most Recent Submission

Question 4. (2pts) Consider the following grammar. A , B , C , and S are the nonterminals. a , b , and c are the terminals. The grammar generates the language $a^n b^n c^n, n \geq 0$.

$$S \rightarrow ABC$$
$$A \rightarrow aA \mid \epsilon$$
$$B \rightarrow bB \mid \epsilon$$
$$C \rightarrow cC \mid \epsilon$$

Select one:

- ☒ false
- ☐ true

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Question 5. (2pts) Consider the grammar

$$S \rightarrow aSbS \mid bSaS \mid \epsilon$$

The grammar is ambiguous.

Select one:

- ☐ false
- ☒ true

Clear Use Most Recent Submission

Extra credit question. (2pts) Referring to the grammar from Question 1, how many parse trees are there for `id x id # id x id # id x id`? Enter a single number on a single line in the first line of the text area with no whitespace.

Write your answer below:

42

Clear Use Most Recent Submission

By clicking "Submit" you are confirming that you have read, understand, and agree to follow the Academic Integrity Policy.

Submit

Select Submission Version: Version #1 GRADE THIS VERSION Do Not Grade This Assignment

Note: This version of your assignment will be graded by the instructor/TAs and the score recorded in the gradebook.

Autograding Total (Without Hidden Points)	
12 / 12	Autograding Total (With Hidden Points)
Test 1 Honor Pledge signature submission	Show Details
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Test 3 Question 2 submission	Show Details
Test 4 Question 3 submission	Show Details
Test 5 Question 4 submission	Show Details
Test 6 Question 5 submission	Show Details
Test 7 Question 6 submission	Show Details
2 / 2	HIDDEN: Test 8 Question 1
2 / 2	HIDDEN: Test 9 Question 2
2 / 2	HIDDEN: Test 10 Question 3
2 / 2	HIDDEN: Test 11 Question 4
2 / 2	HIDDEN: Test 12 Question 5
2 / 2	HIDDEN: Test 13 Question 6
Test 14 Check Honor Pledge	Show Details
Test 15 Check Time Limit	Show Details