Homework quiz 8

Due Mar 26 at 11:59pm **Points** 10 **Questions** 4
Available until Mar 26 at 11:59pm **Time Limit** None
Allowed Attempts Unlimited

Instructions

This "quiz" is your graded homework for the week. Some of it can be done based solely on the materials found on Canvas, while other parts may require lecture material.

I suggest you consume the Canvas material as early as possible and attempt as many problems as you can, and then return to finish after lecture and/or office hours fills in any gaps in your understanding.

You are welcome to take the quiz alone or with others. If you do work with others, it is important that answers are not simply shared but that everyone involved works to understand the solution and could do similar problems alone in the future.

The quiz is untimed and may be taken multiple times. Your highest score achieved before the deadline is the one that will get recorded.

Take the Quiz Again

Attempt History

	Attempt	Time	Score
KEPT	Attempt 2	1,153 minutes	7.5 out of 10
LATEST	Attempt 2	1,153 minutes	7.5 out of 10
	Attempt 1	1,584 minutes	5 out of 10

ⓘ Correct answers are hidden.

Score for this attempt: **7.5** out of 10
Submitted Mar 17 at 11:36am
This attempt took 1,153 minutes.

Question 1 **2.5 / 2.5 pts**

Consider the language L = $\{a^i b^j c^k \mid i+k = j\}$. In a proof that L is not regular, you would assume L is regular, with pumping length p. Which of the following could you apply the Pumping Lemma to. Check all that apply. Note: I am not asking which would lead to a successful proof, just which qualify for applying the Pumping Lemma.

- [ ] aaabbbbc
- [x] $a^p b^p$
- [x] $b^p c^p$
- [ ] $a^p b^p c^p$
- [x] $a^{p/2} b^p c^{p/2}$
- [x] $a^p b^{2p} c^p$

Question 2

2.5 / 2.5 pts

Consider the language L = $\{a^i b^j c^k \mid i+k = j\}$. In a proof that L is not regular, you would assume L is regular, with pumping length p and then choose a string that causes problems when pumped. Some of the following are designed to make the task easy. Place a check next to each that allows a relatively easy argument.

- [ ] aaabbbbc
- [x] $a^p b^p$
- [x] $b^p c^p$
- [ ] $a^p b^p c^p$

- [ ] $a^{p/2}b^pc^{p/2}$

- [x] $a^pb^{2p}c^p$

Question 3

2.5 / 2.5 pts

Consider the following lexical specification.

```
INT: (0+1)(0+1)*
FLOAT: (0+1)(0+1)*.(0+1)* + (0+1)*.(0+1)(0+1)*
KEYWORD: 1111
```

What would be the first two tokens produced by a scanner given the following input string? Use the scanning algorithm seen in class. List each token as an ordered pair without any spaces, like (lexeme,TYPE). For example (00.1,FLOAT).

```
1111 1111. .1111
```

(1111,INT)

(1111.,FLOAT)

Answer 1:

(1111,INT)

Answer 2:

(1111.,FLOAT)

Incorrect

Question 4

0 / 2.5 pts

Consider the following lexical specification (same as above).

```
INT: (0+1)(0+1)*
FLOAT: (0+1)(0+1)*.(0+1)* + (0+1)*.(0+1)(0+1)*
KEYWORD: 1111
```

What would be the first two tokens produced by a scanner given the following input string? Use the scanning algorithm seen in class. List each token as an ordered pair without any spaces, like (lexeme,TYPE). For example (00.1,FLOAT).

```
11111111..1111
```

ERROR

Answer 1:

ERROR

Answer 2:

(You left this blank)

Quiz Score: **7.5** out of 10