

INSTRUCTIONS

- You have 5 minutes to complete this quiz.
- The exam is closed book, closed notes, closed computer, closed calculator.
- Mark your answers **on the exam itself**. We will *not* grade answers written on scratch paper.
- For multiple choice questions, fill in each option or choice completely.
  - means mark **all options** that apply
  - means mark a **single choice**

Last name	
First name	
Student ID number	
CalCentral email (_@berkeley.edu)	
Discussion Section	_____
<i>All the work on this exam is my own.</i> <b>(please sign)</b>	

0. **Your thoughts?** What was your favorite topic from CS 61A this semester?

## 1. Anagrams

Create a table `anagrams` that contains all the anagrams of a word like `cats`. An **anagram** is a rearrangement of the letters in a word. For example, `tacs` and `sact` are anagrams of `cats`.

*Hint:* Each letter must be used exactly once, so the sum of the positions should equal 1111.

CREATE TABLE `anagrams` as

```
WITH word(letter, position) AS (
  SELECT 'c', 1 UNION
  SELECT 'a', 10 UNION
  SELECT 't', 100 UNION
  SELECT 's', 1000
)
```

```
SELECT _____
FROM _____
WHERE _____;
```

```
SELECT * FROM anagrams;
tacs
sact
...
ctsa
atsc
```

## 2. Squares

Using recursive SQL, create a table `squares` containing all the perfect squares between 156 and 1145.

CREATE TABLE `squares` AS

```
WITH naturals(n) AS (
  SELECT 1 UNION
  SELECT _____
)
```

```
SELECT _____
FROM _____
WHERE _____;
```

```
SELECT * FROM squares;
169
196
...
1024
1089
```