



UNIVERSITY OF TORONTO
Faculty of Arts and Science

Midterm 1
CSC165H1S

Duration: 50 minutes
Instructor(s): David Liu, Toniann Pitassi

No Aids Allowed

midterm1 6-1

Name: Coffee

Student Number: 123

Please read the following guidelines carefully!

- Please write your name on both the front and back of this exam.
 - This examination has 4 questions. There are a total of 8 pages, DOUBLE-SIDED.
 - Answer questions clearly and completely, with justifications unless explicitly asked not to.
 - Unless stated otherwise, your formulas can use *only* the propositional connectives and quantifiers we have seen in class, arithmetic operators (like $+$, \times , and exponentiation), comparison operators (like $=$ and $>$), and the divisibility and *Prime* predicates. You may not define your own sets or predicates unless asked to do so.
 - All formulas must have negations applied directly to propositional variables or predicates (e.g., $\neg \text{Prime}(n)$). You do *not* need to show your work for computing negations.
 - In your proofs, you may always use definitions of predicates. You may *not* use any external facts about rates of growth, divisibility, primes, or greatest common divisor unless you prove them, or they are given to you in the question.
 - You may **not** use induction for your proofs on this midterm.
-

Take a deep breath.

This is your chance to show us

How much you've learned.

We **WANT** to give you the credit

That you've earned.

A number does not define you.

midterm 4b.pdf

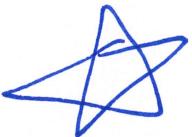
Good luck!



midterm 1002165H1S , Winter 2017

Midterm 1

1. [2 marks] Here is question 1.





2. [2 marks] Here is question 2.

||
)

3. [3 marks] Here is question 3.

||
)



4. [4 marks] Here is a multi-page question.

A

B



Question 4 continued...

C



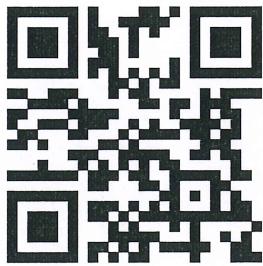
Use this page for rough work. If you want work on this page to be marked, please indicate this clearly *at the location of the original question.*

D



Use this page for rough work. If you want work on this page to be marked, please indicate this clearly *at the location of the original question.*

E



Name:

F

Question	Grade	Out of
Q1		2
Q2		2
Q3		3
Q4		4
Total		11

UNIVERSITY OF TORONTO
Faculty of Arts and Science

Midterm 1
CSC165H1S



Duration: 50 minutes
Instructor(s): David Liu, Toniann Pitassi

midterm1 7-1

No Aids Allowed

Name: Sushi

Student Number: 45b

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1. [2 marks] Here is question 1.

A



2. [2 marks] Here is question 2.

B

3. [3 marks] Here is question 3.

C



4. [4 marks] Here is a multi-page question.

D



CSC165H1S , Winter 2017

Midterm1 7-5

Question 4 continued...

E



Use this page for rough work. If you want work on this page to be marked, please indicate this clearly *at the location of the original question.*

F



Use this page for rough work. If you want work on this page to be marked, please indicate this clearly *at the location of the original question.*

G



midterm 178165H1S , Winter 2017

Midterm 1

Name:

H

Question	Grade	Out of
Q1		2
Q2		2
Q3		3
Q4		4
Total		11



UNIVERSITY OF TORONTO
Faculty of Arts and Science

Midterm 1
CSC165H1S

Duration: 50 minutes
Instructor(s): David Liu, Toniann Pitassi

No Aids Allowed

midterm1 8-1

Name: Ice

Student Number: 500

Please read the following guidelines carefully!

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Good luck!



midterm 1082165H1S , Winter 2017

Midterm 1

1. [2 marks] Here is question 1.

}



2. [2 marks] Here is question 2.

2

3. [3 marks] Here is question 3.

3



midterm 1084165H1S , Winter 2017

Midterm 1

4. [4 marks] Here is a multi-page question.

4



Question 4 continued...

5



Use this page for rough work. If you want work on this page to be marked, please indicate this clearly *at the location of the original question.*

6



Use this page for rough work. If you want work on this page to be marked, please indicate this clearly *at the location of the original question.*

7



Name:

8

Question	Grade	Out of
Q1		2
Q2		2
Q3		3
Q4		4
Total		11