

COMP 1805 – Discrete Structures

Test 3 (Sample), Winter 2015

This is a closed book test. No calculators are allowed. All questions should be answered directly on this sheet in the space provided. Justification should be provided unless otherwise indicated. **This paper is double-sided.** You have 45 minutes to complete this test.

Name									TA Use Only	
Student #										
Tutorial	B1/M1	B2	B3	B5	Grade (/20)		TA			

1. (6 points) Show that $5n^3 - 8n^2 + 2n + 5$ is $\Theta(n^3)$.

2. (6 points) Show that $n^3 - n$ is divisible by 3 when n is a positive integer.

3. (8 points) Let $A = \{1, 2, 3, 4\}$ and define a relation $R = \{(2, 2), (2, 3), (2, 4), (3, 2), (3, 3), (3, 4)\}$ over the set A . Explain whether or not R is...

(a) reflexive

(b) symmetric

(c) antisymmetric

(d) transitive