University of Toronto, St. George Campus
Department of Computer Science

CSC 165H1 F
Fall 2007

Quiz #7

Name: ______________________

Marker's name: ______________________

Instructions to student: Using pen, write your answers in the space provided and leave the right column blank.
Instructions to marker: Write only in the right column, and clearly indicate the mark you believe is deserved in each category. Write the total in the provided blank.

Recall that $g \in O(f)$ iff $\exists c \in \mathbb{R}^+, \exists B \in \mathbb{N}, \forall n \in \mathbb{N}, n \geq B \Rightarrow g(n) \leq cf(n)$.
Using our structured form, prove that

$$\sqrt{8n+4} \in O(n + 3\log_2 n)$$

Be sure that you justify each step of your proof. (*Hint:* $8n \leq 8n^2$.)

For marking only:

5 marks:
2 for structure
2 for correctness
1 for justification

Proof Structure:
0 = improper
1 = somewhat right
2 = right, can use to prove statement

Argument Correctness:
0 = not convincing
1 = halfway there (minor flaws)
2 = convincing

Justification:
0 = often wrong
0.5 = sometimes
1 = easy to read

Total: ________