

## CSC 656 – Assignment 0 Formulas

The following formulas are to be used for “Assignment 0”. As stated in the instructions, you should take the two formulas below that correspond to the initial letters in your first and last name, and type these in L<sup>A</sup>T<sub>E</sub>X. If your first and last names begin with the same letter, use the last “Alt” formula as your second formula. For example, “John Smith” would type formula “J” and formula “S,” and “Sam Smith” would type formula “S” and formula “Alt.”

A:

$$\sum_{i=1}^n i = \frac{n(n+1)}{2}$$

B:

$$\sum_{i=0}^{n-1} (2i+1) = n^2$$

C:

$$\log_2 x = \frac{\log_{10} x}{\log_{10} 2}$$

D:

$$\sin^2 x + \cos^2 x = 1$$

F:

$$S ::= \{x \mid x \geq 10\}$$

G:

$$\frac{x+1}{x^2-1} = \frac{x+1}{(x+1)(x-1)} = \frac{1}{x-1}$$

H:

$$\sqrt{2} \notin \mathbb{Q}$$

J:

$$\sqrt{b^2 - 4ac}$$

K:

$$\sqrt[3]{x} = x^{1/3}$$

L:

$$\log_2 2^x = x \log_2 2 = x$$

M:

$$\forall x \in \mathbb{R}. x^2 \geq 0$$

N:

$$\int_1^n \frac{1}{x} dx = \ln n$$

P:

$$\sum_{i=1}^n \frac{1}{i} \leq 1 + \ln n$$

R:

$$\frac{a+b}{2} \geq \sqrt{ab}$$

S:

$$f(x) = \frac{1}{3}x^3 + \frac{1}{2}x^2 + x + 1$$

T:

$$x^{a+b} = x^a x^b$$

U:

$$(x^a)^b = x^{ab}$$

V:

$$H_2 = \begin{bmatrix} 1 & 1 \\ 1 & -1 \end{bmatrix}$$

Y:

$$e^{ix} = \cos x + i \sin x$$

Alt:

$$n! \sim \sqrt{2\pi n} \left(\frac{n}{e}\right)^n$$