

# Project III: L<sup>A</sup>T<sub>E</sub>X Component<sup>1</sup>

My name is Francis Opoku. This is my second L<sup>A</sup>T<sub>E</sub>X document.

$$1. \left( \begin{array}{c|c} \overbrace{\int_1^3 \frac{1}{t} dt} & |-4| \\ \hline \oint \mathbf{B} \cdot d\mathbf{a} & \mathbf{A} \end{array} \right) \stackrel{?}{=} \left( \begin{array}{c|c} \underbrace{\ln 3} & 4 \\ \hline 0 & \frac{1}{4\pi} \int \frac{\mathbf{B} \times \hat{R}}{R^2} d\tau' \end{array} \right)$$

2. By completing the square, solve the equation  $2x^2 + 8x + 1 = 0$ .

**Solution:**

$$2x^2 + 8x + 1 = 0 \tag{1}$$

$$2x^2 + 8x = -1 \tag{2}$$

$$2(x^2 + 4x) = -1 \tag{3}$$

$$2(x^2 + 4x + (2)^2) = -1 + 2(2)^2 \tag{4}$$

$$(x + 2)^2 = \frac{7}{2} \tag{5}$$

$$x + 2 = \pm \sqrt{\frac{7}{2}}$$

$$x + 2 = \pm \sqrt{\frac{7}{2}} \sqrt{\frac{2}{2}} = \pm \frac{\sqrt{14}}{2}$$

$$x = -2 \pm \frac{\sqrt{14}}{2}. \tag{6}$$

Outcome	Number of Times Out of fifty Repetitions										Total	Frac
	1	2	3	4	5	6	7	8	9	10		
TT	12	14	10	8	12	11	13	15	9	13	117	.234
HT	12	12	13	14	15	14	14	11	15	12	132	.264
TH	14	13	15	13	10	13	10	11	11	14	124	.248
HH	12	11	12	15	13	12	13	13	15	11	127	.254
Total	50	50	50	50	50	50	50	50	50	50	500	1.000

Frac (Fraction) is the ratio of the number of heads divided by 500

Table 1: Summary of Data for 50 Samples of Size 2

<sup>1</sup>Created January 19, 2016