#10 (Total 25 Points)

[1]

Month	Phishing attempts	Smoothed Estimate
Starting Value		**33,58**
January	10	31,93
February	15	30,75
March	18	29,85
April	20	29,17
May	25	28,87
June	30	28,95
July	35	29,38
August	40	30,12
September	45	31,16
October	50	32,48
November	55	34,06
December	60	35,87

$$\vartheta_0 = \frac{1}{n} * \sum_{i=1}^{n} y_i = \frac{1}{12} * (10 + 15 + \cdots + 60) = 33{,}58$$

$$\vartheta_1 = \alpha * y_1 + (1 - \alpha) * \vartheta_{1-1} = 0{,}07 * 10 + 0{,}97 * 33{,}58 = 31{,}93$$

[2]

t	$(y_t - \vartheta_{t-1})^2$
1	556,02
2	286,60
3	162,42
4	97,07
5	17,33
6	1,27
7	36,60
8	112,92
9	221,49
10	354,97
11	507,23
12	673,16
Total	**3027,08**

$$s = \sqrt{\frac{3027{,}08}{12 - 1}} = 16{,}59$$

[3]

$$[\vartheta_{12} \pm 1{,}96 * 16{,}59] = [3{,}36; 68{,}39]$$