

1

1.a

1.a.1 ECM teórico de $\hat{\theta}_{MV}$

$$ECM(\hat{\theta}_{MC}, \theta) = \frac{2*\theta^2}{(n+1)*(n+2)}$$

| | $\theta = 1$ | $\theta = 10$ | $\theta = 40$ |
|----------|--------------|---------------|---------------|
| $n = 5$ | 0.04762 | 4.762 | 76.19 |
| $n = 30$ | 0.002016 | 0.2016 | 3.226 |
| $n = 60$ | 0.0005288 | 0.05288 | 0.8461 |

1.a.2 ECM teórico de $\hat{\theta}_m$

$$ECM(\hat{\theta}_m, \theta) = \frac{\theta^2}{3n}$$

| | $\theta = 1$ | $\theta = 10$ | $\theta = 40$ |
|----------|--------------|---------------|---------------|
| $n = 5$ | 0.06667 | 6.667 | 106.7 |
| $n = 30$ | 0.01111 | 1.111 | 17.78 |
| $n = 60$ | 0.005555 | 0.5555 | 8.889 |

1.b

1.b.1 ECM estimado de $\hat{\theta}_{MV}$

| | $\theta = 1$ | $\theta = 10$ | $\theta = 40$ |
|----------|--------------|---------------|---------------|
| $n = 5$ | 0.05602 | 5.602 | 89.62792 |
| $n = 30$ | 0.002190 | 0.2190 | 3.504 |
| $n = 60$ | 0.0004964 | 0.04964 | 0.7942 |

1.b.2 ECM estimado de $\hat{\theta}_m$

| | $\theta = 1$ | $\theta = 10$ | $\theta = 40$ |
|----------|--------------|---------------|---------------|
| $n = 5$ | 0.06854 | 6.854 | 109.7 |
| $n = 30$ | 0.01093 | 1.093 | 17.49 |
| $n = 60$ | 0.005883 | 0.5883 | 9.413 |