

1. 10.12

$$\text{a. margin of error} = 2 \sqrt{\frac{0.47 \times 0.53}{1100}} = 0.03$$

$$95\% \text{ confidence interval} = 0.47 \pm 0.03 = (0.44, 0.50)$$

95%信心區間為 44%到 50%之間

b. 信心區間 0.44 到 0.50 估計出所有美國成年人認為大麻應被

合法化的比例。以百分比來表示，便是 44%到 50%之間。

2. 10.28

$$\text{a. } \hat{p} = 57\%$$

$$n = 1006$$

$$\text{s.e.} = \sqrt{\frac{0.57 \times 0.43}{1006}} = 0.016$$

$$95\% \text{ confidence interval} = 0.57 \pm 2 \times 0.016 = (0.538, 0.602)$$

95%信賴區間為 53.8%到 60.2%之間

b. 是。因為信賴區間的範圍在 53.8%到 60.2%之間即使是最

小的比例也大於 50%，故可以說有超過一半的美國人認為墮

胎只應於特定狀況下合法化。

$$\text{c. } \hat{p} = 18\%$$

$$n = 1006$$

$$\text{s.e.} = \sqrt{\frac{0.18 \times 0.82}{1006}} = 0.012$$

$$95\% \text{ confidence interval} = 0.18 \pm 2 \times 0.012 = (0.156, 0.204)$$

95%信賴區間為 15.6%到 20.4%之間

3.

10.12

Data	
Sample Size	1100
Number of Successes	517
Confidence Level	95%
Intermediate Calculations	
Sample Proportion	0.47
Z Value	-1.9600
Standard Error of the Proportion	0.0150
Interval Half Width	0.0295
Confidence Interval	
Interval Lower Limit	0.4405
Interval Upper Limit	0.4995

10.28 a.

Data	
Sample Size	1006
Number of Successes	573
Confidence Level	95%
Intermediate Calculations	
Sample Proportion	0.5695825
Z Value	-1.9600
Standard Error of the Proportion	0.0156
Interval Half Width	0.0306
Confidence Interval	
Interval Lower Limit	0.5390
Interval Upper Limit	0.6002

10.28 c.

Data	
Sample Size	1006
Number of Successes	181
Confidence Level	95%
Intermediate Calculations	
Sample Proportion	0.1799205
Z Value	-1.9600
Standard Error of the Proportion	0.0121
Interval Half Width	0.0237
Confidence Interval	
Interval Lower Limit	0.1562
Interval Upper Limit	0.2037

4.

a. $\hat{p}_1 - \hat{p}_2 = 0.95 - 0.85 = 0.1$

$$s.e.(\hat{p}_1 - \hat{p}_2) = \sqrt{\frac{0.95 \times 0.05}{346} + \frac{0.85 \times 0.15}{522}} = 0.02$$

$$95\% \text{ confidence interval} = 0.1 \pm 1.96 \times 0.02 = (0.292, 0.492)$$

- b. 藉由 a 所計算的男女差異我們可得知男性會選擇與現在的伴侶再結婚的比例較女性高 29.2% 到 49.2%。

5.11.6

a. $s.e.(\bar{x}) = \frac{s}{\sqrt{n}} = \frac{1}{\sqrt{25}} = 0.2$

b. $s.e.(\bar{d}) = \frac{d_s}{\sqrt{n}} = \frac{6}{\sqrt{100}} = 0.6$