

Problem 1

|    |                                                                          |
|----|--------------------------------------------------------------------------|
|    | B                                                                        |
| =  |                                                                          |
| 1  | 11.5                                                                     |
| 2  | 33.9                                                                     |
| 3  |                                                                          |
| 4  |                                                                          |
| 5  |                                                                          |
| 6  |                                                                          |
| 7  |                                                                          |
| 8  |                                                                          |
| 9  |                                                                          |
| 10 |                                                                          |
| 11 |                                                                          |
| 12 |                                                                          |
| 13 |                                                                          |
| 14 |                                                                          |
| 15 |                                                                          |
|    | <input type="button" value="&lt;"/> <input type="button" value="/&gt;"/> |
| B3 |                                                                          |

1) Given Interval Notation (11.5 ,33.9 )

$$p=(33.9+11.5)/2$$

$$=45.4/2$$

$$=22.7$$

$$\epsilon = (33.9-11.5)/2$$

$$=22.4/2$$

$$=11.2$$

**Conjunction notation**

$$11.5 < p < 33.9$$

**Tolerance Notation**

$$22.7 \pm 11.2$$

Problem 2

|    | B    |
|----|------|
| =  |      |
| 1  | 3.9  |
| 2  | 14.7 |
| 3  |      |
| 4  |      |
| 5  |      |
| 6  |      |
| 7  |      |
| 8  |      |
| 9  |      |
| 10 |      |
| 11 |      |
| 12 |      |
| 13 |      |
| 14 |      |
| 15 |      |

2) Given Conjunction Notation  $3.9 < p < 14.7$

$$p = (14.7 + 3.9)/2$$

$$= 18.6/2$$

$$= 9.3$$

$$\epsilon = (14.7 - 3.9)/2$$

$$= 10.8/2$$

$$= 5.4$$

**Interval notation**

$$(3.9, 14.7)$$

**Tolerance Notation**

$$9.3 \pm 5.4$$

Problem 3

|    |                                                                          |
|----|--------------------------------------------------------------------------|
|    | B                                                                        |
| =  |                                                                          |
| 1  | 17.88                                                                    |
| 2  | 2.52                                                                     |
| 3  |                                                                          |
| 4  |                                                                          |
| 5  |                                                                          |
| 6  |                                                                          |
| 7  |                                                                          |
| 8  |                                                                          |
| 9  |                                                                          |
| 10 |                                                                          |
| 11 |                                                                          |
| 12 |                                                                          |
| 13 |                                                                          |
| 14 |                                                                          |
| 15 |                                                                          |
|    | <input type="button" value="&lt;"/> <input type="button" value="/&gt;"/> |
| B3 |                                                                          |

3) Given  $p = 17.88$   $E = 2.52$

**Interval notation**

$$(17.88 - 2.52, 17.88 + 2.52)$$

$$(15.36, 20.4)$$

**Conjunction notation**

$$15.36 < p < 20.4$$

**Tolerance Notation**

$$17.88 \pm 2.52$$

Problem 4

|    |                                                                          |
|----|--------------------------------------------------------------------------|
|    | B                                                                        |
| =  |                                                                          |
| 1  | 75.8                                                                     |
| 2  | 17.6                                                                     |
| 3  |                                                                          |
| 4  |                                                                          |
| 5  |                                                                          |
| 6  |                                                                          |
| 7  |                                                                          |
| 8  |                                                                          |
| 9  |                                                                          |
| 10 |                                                                          |
| 11 |                                                                          |
| 12 |                                                                          |
| 13 |                                                                          |
| 14 |                                                                          |
| 15 |                                                                          |
|    | <input type="button" value="&lt;"/> <input type="button" value="/&gt;"/> |
| B3 |                                                                          |

4) Given Tolerance Notation  $75.8 \pm 17.6$

$$p = 75.8$$

$$E = 17.6$$

**Interval notation**

$$(75.8 - 17.6, 75.8 + 17.6)$$

$$(58.2, 93.4)$$

**Conjunction notation**

$$58.2 < p < 93.4$$

Problem 5

|    | B      |
|----|--------|
| 1  | 175    |
| 2  | 136    |
| 3  | 95     |
| 4  | famous |
| 5  | 1.96   |
| 6  |        |
| 7  |        |
| 8  |        |
| 9  |        |
| 10 |        |
| 11 |        |
| 12 |        |
| 13 |        |
| 14 |        |
| 15 |        |

5) Given  $n=175$   $x=136$  Confidence Level =95 %

$$\text{Implied Alpha} = 100\% - 95\% = 5\% = 0.05$$

$$\text{Implied 1/2 Alpha} = \frac{1}{2} 5\% = 2.5\% = 0.025$$

$$p = 136/175 = 0.777143 \quad q = 1 - 0.777143 = 0.222857$$

$$CV = 1.96 \text{ (famous)}$$

$$E = 1.96 \sqrt{[0.777143][0.222857]/(175)}$$

$$E = 0.06166$$

**Tolerance Notation**  $0.777143 \pm 0.06166$

**Interval notation**

$$(0.777143 - 0.06166, 0.777143 + 0.06166)$$

$$(0.715483, 0.838802)$$

**Conjunction notation**

$$0.715483 < p < 0.838802$$

## Problem 6

|    | A  | B        |
|----|----|----------|
| =  |    |          |
| 1  | n  |          |
| 2  | x  |          |
| 3  | CL |          |
| 4  | CV | not famo |
| 5  |    |          |
| 6  |    |          |
| 7  |    |          |
| 8  |    |          |
| 9  |    |          |
| 10 |    |          |
| 11 |    |          |
| 12 |    |          |
| 13 |    |          |
| 14 |    |          |
| 15 |    |          |
| A5 |    |          |

6) Given  $n=900$   $x=631$  Confidence Level =84 %

$$\text{Implied Alpha} = 100\% - 84\% = 16\% = 0.16$$

$$\text{Implied 1/2 Alpha} = \frac{1}{2} 16\% = 8\% = 0.08$$

$$p = 631 / 900 = 0.701111 \quad q = 1 - 0.701111 = 0.298889$$

$$CV = \text{invnorm}(0.08, 0, 1) = -1.40507 \quad (\text{use positive value})$$

$$E = 1.40507 \sqrt{[0.701111)(0.298889)]/(900)}$$

$$E = 0.02144$$

**Tolerance Notation**  $0.701111 \pm 0.02144$

**Interval notation**

$$(0.701111 - 0.02144, 0.701111 + 0.02144)$$

$$(0.679671, 0.722551)$$

**Conjunction notation**

$$0.679671 < p < 0.722551$$