

## MIDTERM EXAMINATION #1 ANSWER KEY

### VERSION A

#### I. MULTIPLE CHOICE

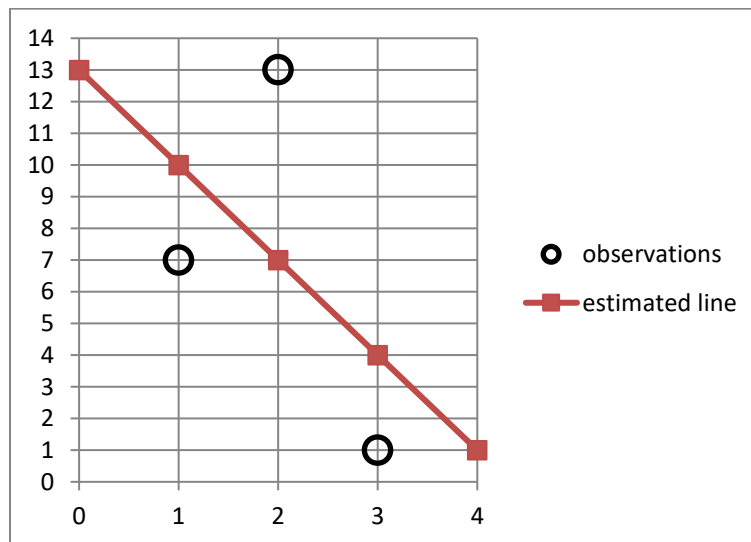
(1)b. (2)d. (3)a. (4)a. (5)d. (6)a. (7)a. (8)c. (9)b.

#### II. SHORT ANSWER

- (1) a. TRUE      b. FALSE      c. TRUE      d. FALSE.  
 (2) a. 0.2          b. 0.16.  
 (3) a. 1.75          b. 1.2              c. 1.45.  
 (4) a. 10              b. 48.  
 (5) a. 4                b. 0.5.  
 (6) a. asymmetric      b. symmetric      c. symmetric      d. asymmetric.  
 (7) a. estimator B      b. estimator A.

#### III. PROBLEMS

(1) a. -3              b. 13              c. 10, 7, 4      d. -3, 6, -3.      e. see below.



- (2) a. 8              b. 2              c. 5              d. 9.  
 (3) a. Population distribution is discrete because the number of children in a family must be a non-negative integer.  
 b. 2.1              c. 0.02              d.  $2.1 \pm 0.0392 = (2.0608, 2.1392)$   
 e. test statistic = 5.0, critical point = 1.645, reject null hypothesis.

## VERSION B

### I. MULTIPLE CHOICE

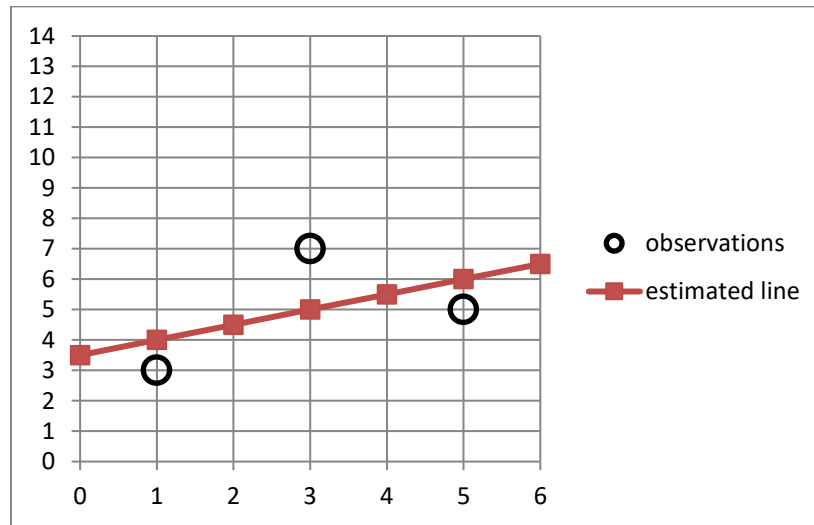
(1)c. (2)a. (3)b. (4)b. (5)c. (6)d. (7)b. (8)b. (9)a.

### II. SHORT ANSWER

- (1) a. FALSE      b. TRUE      c. FALSE      d. TRUE.  
(2) a. 0.7          b. 0.21.  
(3) a. 1.5          b. 1.25          c. 1.3.  
(4) a. 9              b. 12.  
(5) a. 5              b. 2.5.  
(6) a. asymmetric      b. asymmetric      c. symmetric      d. symmetric.  
(7) a. equal              b. estimator B.

### III. PROBLEMS

(1) a. 0.5          b. 3.5          c. 4, 5, 6      d. -1, 2, -1.      e. see below.



- (2) a. 5              b. -1              c. 0.8              d. 1.8.
- (3) a. Population distribution is discrete because the number of children in a family must be a non-negative integer.  
b. 2.05          c. 0.03          d.  $2.05 \pm 0.0588 = (1.9912, 2.1088)$   
e. test statistic = 1.667, critical point =  $\pm 1.96$ , cannot reject null hypothesis.

### VERSION C

#### I. MULTIPLE CHOICE

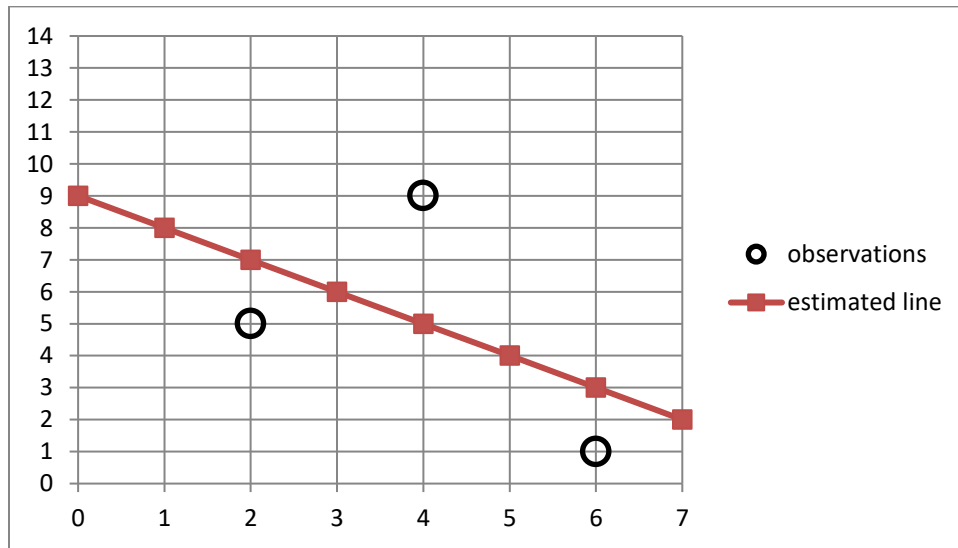
(1)c. (2)b. (3)d. (4)c. (5)b. (6)c. (7)c. (8)a. (9)a.

#### II. SHORT ANSWER

- (1) a. TRUE      b. FALSE      c. FALSE      d. TRUE.  
(2) a. 0.4        b. 0.24.  
(3) a. 1            b. 1.5            c. 1.4.  
(4) a. 13          b. 75.  
(5) a. 6            b. 3.  
(6) a. symmetric      b. asymmetric      c. asymmetric      d. symmetric.  
(7) a. estimator A      b. equal.

#### III. PROBLEMS

(1) a. -1            b. 9            c. 7, 5, 3        d. -2, 4, -2.    e. see below.



- (2) a. 8            b. 2            c. 1.25          d. 5.25.  
(3) a. Population distribution is discrete because the number of children in a family must be a non-negative integer.  
b. 2.12          c. 0.04          d.  $2.12 \pm 0.0784 = (2.0416, 2.1984)$   
e. test statistic = -2, critical point = 1.645, reject null hypothesis.

[end of answer key]