Print Name:_____

MA 110 Quiz 3 ANSWERS

Multiple Choice. Choose, by **circling** the letter of the answer, the one alternative that best completes the statement or answers the question.

Table 1.1 refers to a situation where four players (A, B, C, and D) agree to divide a cake fairly by the Lone Divider method. The table shows how each player values (as a percentage of the whole) each of the four slices that have been cut by the divider.

Player \ Slice	s_1	s_2	s_3	s_4
A	35%	20%	15%	30%
B	25%	25%	25%	25%
C	15%	15%	40%	30%
D	20%	40%	20%	20%

Table 1.1

1. Assuming she plays honestly and intelligently, what should player A's declaration be?
   a. s_1
   b. s_2
   c. s_3
   d. s_4
   e. s_2, s_3
   f. s_3, s_4
   g. s_1, s_4
   h. s_1, s_2, s_3, s_4

Table 1.2 refers to a situation in which four players (one divider and three choosers) are going to divide a cake fairly by the Lone Divider method. The divider has cut the cake into four slices $\{s_1, s_2, s_3, s_4\}$ and the choosers declarations are as shown.

Table 1.2	Declaration
Chooser 1	s_1, s_3
Chooser 2	s_2
Chooser 3	s_1, s_4

2. If the choosers' declarations are as in Table 1.2, which of the following **is not** a fair division of the cake?
   a. Divider: s_3; Chooser 1: s_1; Chooser 2: s_2; Chooser 3: s_4.
   b. Divider: s_1; Chooser 1: s_3; Chooser 2: s_2; Chooser 3: s_4.
   c. Divider: s_4; Chooser 1: s_1; Chooser 2: s_2; Chooser 3: s_3.
   d. Divider: s_4; Chooser 1: s_3; Chooser 2: s_2; Chooser 3: s_1.
   e. All of the above are fair divisions of the cake.
   f. None of the above is a fair division of the cake.

In Figure 1.3 is a cake that Angela and Ben want to divide. The total cost of the cake was $12.00. Angela values strawberry twice as much as she values chocolate. Ben values chocolate twice as much as he values strawberry.

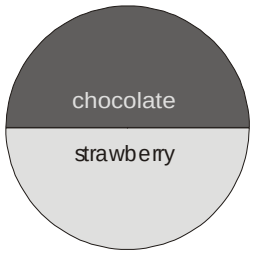
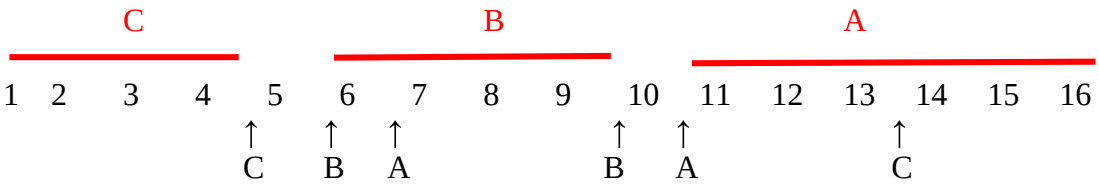


Figure 1.3

3. The value of the chocolate half of the cake to Angela is
   a. $4.00
   b. $5.00
   c. $6.00
   d. $7.00
   e. $8.00
   f. $9.00

4. **Complete Answer.** Three players (A, B, and C) are fairly dividing some items by the Method of Markers. They have marked the linear array below as shown. Describe the allocation of items to each player and indicate what items, if any, are leftover.



Leftover: 5, 10