INSTRUCTIONS: Answer all 8 problems by filling in the bubble sheet on the back. Some of these problems refer to the exercises in the *Fair Division* chapter of **Math In Society** by David Lippman, linked on our www.math100.info web page. This HW is open everything. **Due Monday April 13 (or Wed. April 15 with 10% penalty)**

Dustin and Kendra want to split a bag of fun-sized candy, and decide to use the divider-chooser method. The bag contains 100 Snickers, 100 Milky Ways, and 100 Reese's, which Dustin values at \$1, \$5, and \$2 respectively. (This means Dustin values the 100 Snickers together at \$1, or \$0.01 for 1 Snickers).

1. If Kendra is the divider, and in one half puts: 25 Snickers, 20 Milky Ways, and 60 Reese's, what is the value of this half in Dustin's eyes? A. under \$2.00 B. between \$2 and \$3 C. between \$3 and \$6 D. over \$6

2. Does Dustin consider this a fair share? A. Yes B. No

3. If Dustin was a divider, which of these are possible divisions consistent with his value system.
   A. 50 Snickers, 50 Milky Ways, and 50 Reese's
   B. 100 Snickers, 20 Milky Ways, and 100 Reese's
   C. 200 Snickers, 0 Milky Ways, and 100 Reese's
   D. 2 of A, B, and C
   E. All of A, B, and C

4. Three players (one divider, two choosers) are going to use Lone Divider to cut a cake. The divider cuts the cake into 3 pieces. The two choosers value the cake as follows:

	P1	P2	P3
Chooser A	30%	40%	30%
Chooser B	32%	32%	36%

   Which of the following is a fair division of the cake?
   A. Chooser A gets P3; chooser B gets P2; Divider gets P1
   B. Chooser A gets P1; chooser B gets P2; Divider gets P3
   C. Chooser A gets P2; chooser B gets P1; Divider gets P3
   D. Chooser A gets P2; chooser B gets P3; Divider gets P1
   E. None of these

Maggie, Meredith, Holly, and Zoe are dividing a piece of land using the lone-divider method. The values of the four pieces of land in the eyes of the each player are shown below.

	Piece 1	Piece 2	Piece 3	Piece 4
Maggie	21%	27%	32%	20%
Meredith	27%	29%	22%	22%
Holly	23%	14%	41%	22%
Zoe	25%	25%	25%	25%

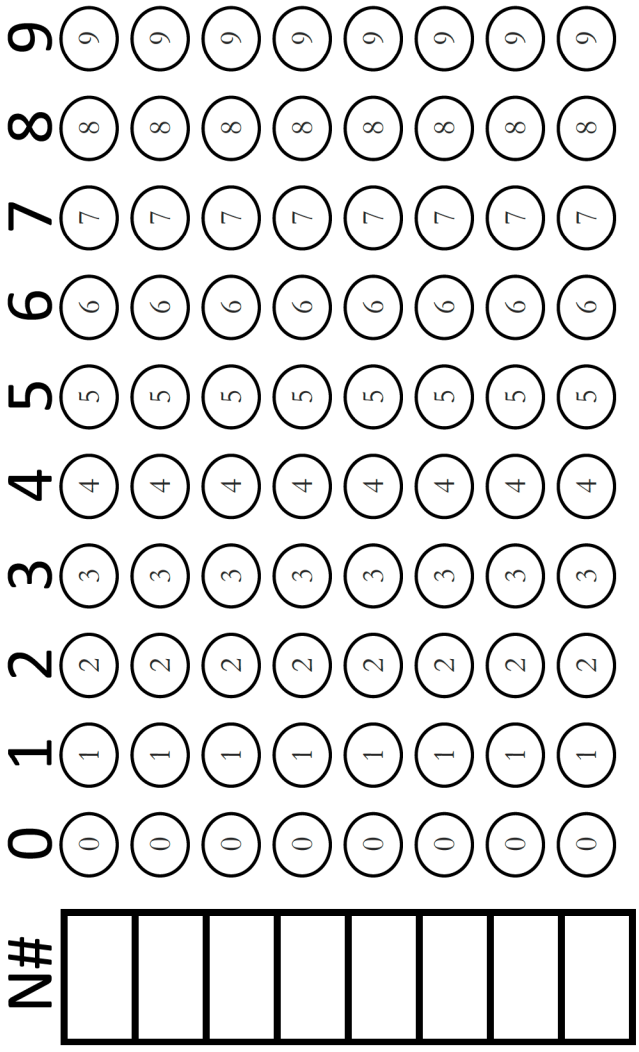
5. Who was the divider?
   A. Maggie B. Meredith C. Holly D. Zoe

6. Which pieces do Meredith find acceptably large? A. {Piece 1} B. {Piece 1, Piece 2} C. {Piece 1, , Piece 2, Piece 3} D. {Piece 2, Piece 3} E. None of these

7. Who gets Piece 1 in the final division?
   A. Maggie B. Meredith C. Holly D. Zoe

8. Who gets Piece 3 in the final division?
   A. Maggie B. Meredith C. Holly D. Zoe

Name:_____



	A	B	C	D	E
1)	A	B	C	D	E
2)	A	B	C	D	E
3)	A	B	C	D	E
4)	A	B	C	D	E
5)	A	B	C	D	E
6)	A	B	C	D	E
7)	A	B	C	D	E
8)	A	B	C	D	E
9)	A	B	C	D	E
10)	A	B	C	D	E