

# VARIABLE PUZZLES - A

# ANSWERS

EACH PROBLEM HAS 5 LETTERS WHICH CAN EQUAL A COUNTING NUMBER UP TO 5, BUT NO LETTERS CAN EQUAL THE SAME NUMBER. IN OTHER WORDS, IF  $D = 3$  THEN NONE OF THE OTHER LETTERS CAN EQUAL 3. YOUR GOAL IS TO USE THE EQUATIONS AND GRIDS TO HELP FIGURE OUT WHAT EACH LETTER EQUALS.

## HELPFUL EXAMPLE

- $C + E = A$
- $C + A = 4$
- $E + D + C = 7$

THE THREE EQUATIONS TO THE LEFT HAVE CLUES ON WHAT EACH VARIABLE (LETTER) EQUALS. USE THE GRID TO HELP FIGURE OUT WHAT EACH ONE REPRESENTS. USE "N" FOR NO AND "Y" FOR YES.

	1	2	3	4	5
A	N	N			
B					
C					N
D					
E					N

1.  $C + E = A$

SINCE 5 IS THE HIGHEST NUMBER, "C" AND "E" CAN'T EQUAL 5, AND SINCE THE LOWEST TWO NUMBERS ARE 1 AND 2, "A" HAS TO BE GREATER THAN 2.

	1	2	3	4	5
A	N	N	Y	N	N
B	N	Y	N		
C	Y	N	N	N	N
D	N	N	N		
E	N	Y	N	N	N

2.  $C + A = 4$

THIS TELLS US "A" CAN NOT EQUAL 5 AND "C" AND "A" CAN'T EQUAL 4. NOW WE KNOW "A" MUST EQUAL 3 AND "C" HAS TO BE 1 BECAUSE  $1 + 3 = 4$ . WE CAN ALSO USE THE FIRST EQUATION TO SHOW "E" MUST EQUAL 2, BECAUSE  $1 + 2 = 3$ .

	1	2	3	4	5
A	N	N	Y	N	N
B	N	N	N	N	Y
C	Y	N	N	N	N
D	N	N	N	Y	N
E	N	Y	N	N	N

3.  $E + D + C = 7$

NOW WE CAN SUBSTITUTE 2 AND 1 FOR "E" AND "C" WHICH TELL US "D" MUST EQUAL 4, BECAUSE  $2 + 4 + 1 = 7$ . THE ONLY LETTER LEFT IS "B" WHICH HAS TO BE 5.

## NOW YOUR TURN.

### PROBLEM #1

- $C + A + E = 6$
- $B + A + C = 10$
- $C + E = A$

	1	2	3	4	5
A	N	N	Y	N	N
B	N	N	N	N	Y
C	N	Y	N	N	N
D	N	N	N	Y	N
E	Y	N	N	N	N

### PROBLEM #2

- $C + B = E$
- $B + E = 5$
- $C + D = 5$
- $D < E$

	1	2	3	4	5
A	N	N	N	N	Y
B	Y	N	N	N	N
C	N	N	Y	N	N
D	N	Y	N	N	N
E	N	N	N	Y	N