READY-X

READY-X puzzles were created by Carole Greenes and Tanner Wolfram. The *MathLinks* team thanks the authors for permission to use them as an Activity Routine in the NEW *MathLinks* Core program for Grade 8.

READY-X is an algebraic reasoning puzzle that requires solving equations and systems of equations (formally or informally).

- The board is a grid with 3 rows, 4 columns, and 12 spaces. Each space contains one of the letters: R, E, A, D, Y, X, with some letters repeated. Letter values are whole numbers from 1 through 10. Within the grid, the same letter represents the same number, and different letters represent different numbers. Letter values differ from puzzle to puzzle.
- At the end of each row and at the bottom of each column is the sum of the numbers in that row or column. Therefore, all rows and columns are addition equations.
- To complete the grid, determine the value of each letter using logic, equations, or systems of equations.

Why: READY-X puzzles develop logical, algebraic reasoning and number sense. Working on these puzzles also provides a "need to know" for solving algebraic equations.

Prepare ahead: Try the puzzle yourself before assigning it. This will give you insight into the strategies and struggles students may encounter. Think about questions you might ask as well.

Launch the activity: Use Puzzles I and II to help students gain confidence and establish norms for discussion.
- Print (or display) each puzzle one at a time.
- Give students time to work alone first.
- Encourage students to share strategies. Record solutions.
- Generalize strategies when appropriate.

Accountability/Follow-up:
- Ask students to create their own READY-X puzzles and exchange with peers.

Solutions to Puzzles I and II:

READY-X: Puzzle I
R = 8, E = 6, A = 10, D = 5, Y = 4, X = 3

READY-X: Puzzle II
R = 8, E = 5, A = 7, D = 3, Y = 2, X = 10

READY-X: PUZZLE I

1. Solve for the values of R, E, A, D, Y, X. Sums of rows and columns are indicated at the end of each row or column.

COLUMNS

	1	2	3	
1	R	X	E	**17**
2	D	X	D	**13**
3	Y	X	A	**16**
4	D	X	E	**14**
	22	**12**	**27**	

ROWS

R = _____ E = _____ A = _____ D = _____ Y = _____ X = _____

READY-X: PUZZLE II

1. Solve for the values of R, E, A, D, Y, X. Sums of rows and columns are indicated at the end of each row or column.

COLUMNS

ROWS	1	2	3	
1	Y	Y	R	**12**
2	X	X	R	**28**
3	D	D	D	**12**
4	A	E	R	**20**
	22	**12**	**27**	

R = _____ E = _____ A = _____ D = _____ Y = _____ X = _____