

DODECABUS

Not long ago, I was contacted by Robert J. Rothwell, who had invented a numerical mathematics puzzle that he called *Dodecabus*. You are given a small number of equations that link various unknowns that you have to solve for positive whole numbers between 1 and 12 inclusive. The numbers for the variables do not all have to be different. While this sounds like algebra (and of course the puzzles could be solved algebraically), his puzzles could be unravelled with some simple deduction and inspired trial and error.

Here is a set of equations classified as easy:

$$T = 3 \times U + 1 :$$

$$U = T - V :$$

$$V = 6 \times U - 7.$$

Since V is positive but cannot be bigger than 12, the only possibilities for U are 2 and 3. If U were 3, then the first and third equations tell us that T would be 10 and V would be 11. But then the second equation would not be true. So U can only be 2 and we discover that $(T, U, V) = (7, 2, 5)$.

Here is a stiffer one for you to try on your own:

$$T = V - W$$

$$U = W \times W - V$$

$$V = 2 \times T - U$$

$$W = T - U.$$

In case you want more of this, he has collected about 150 of sets of two to six equations graded according to difficulty in a book. I gave a copy to my grandson, who immediately became absorbed in working them out. Rothwell's book is entitled

Robert J. Rothwell, Dodecabus: a new type of math puzzle (2014) (v + 81 pages)

and is published by Friesen Press in Victoria, BC: www.friesenpress.com/bookstore. Search by author. The e-book cost is \$3.99; the paperback edition is \$7.99.