



Problem of the Week #2

9/4/2017 to 9/17/2017

Assume that  $x$ ,  $y$ , and  $z$  are all positive real numbers that satisfy the system of equations

$$x + y + xy = 8$$

$$y + z + yz = 15$$

$$z + x + zx = 35.$$

Determine the value of  $x + y + z + xyz$ .

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Solutions to the last problem were submitted by Matthew Brom (Troy, NY), M.V. Channakeshava (India), R. Govindan (India), Rob Hill (Gambrills, Maryland), Lincoln James (Chicago, IL), Brandon Jeong (Beaverton, OR), Kipp Johnson (Beaverton, OR), Hari Kishan (India), Tom O'Neil (Central Coast of CA), Luciano Santos (Portugal), F. Wallner (Germany), and Yian Ann Xu (Trinity).

Solutions for this problem can be submitted to Dr. Brian Miceli at [bmiceli@trinity.edu](mailto:bmiceli@trinity.edu), or you can drop them off at his office, MMH 115F. People with correct solutions will be acknowledged on the next problem. For old problems, follow the "Problem of the Week" link at [www.trinity.edu/bmiceli](http://www.trinity.edu/bmiceli), and if you like these problems, you may be interested in the Putnam Exam. More information on the Putnam Exam can also be found at [www.trinity.edu/bmiceli](http://www.trinity.edu/bmiceli).