



1. Find 5 ordered pairs (x, y) that satisfy the equation $x + \frac{1}{y} = 1$.
2. Find all ordered pairs of integers (x, y) that satisfy the equation $x + \frac{1}{y} = 1$.




If $x + \frac{1}{y} = 1$ and $y + \frac{1}{z} = 1$, then what is the value of the product xyz ?



3. If $x + \frac{1}{y} = 2$ and $y + \frac{1}{z} = \frac{1}{2}$, then what is the value of the product xyz ?
4. If $x + \frac{1}{y} = 3$ and $y + \frac{1}{z} = \frac{1}{3}$, then what is the value of the product xyz ?
5. If $x + \frac{1}{y} = 4$ and $y + \frac{1}{z} = \frac{1}{4}$, then what is the value of the product xyz ?
6. See anything interesting in the answers to the previous three questions? Will the pattern continue?

 *Further Exploration*

7. If $x + \frac{1}{y} = 2$ and $y + \frac{1}{z} = 1$, then is there only one possible value of xyz ?
8. If $x + \frac{1}{y} = 1$ and $y + \frac{1}{z} = 1$, then must we also have $z + \frac{1}{x} = 1$?

 *Share Your Thoughts*

Have some thoughts about the video? Want to discuss the problems on the Activity Sheet? Visit the MATHCOUNTS Facebook page or the Art of Problem Solving Online Community (www.artofproblemsolving.com).