**Fifth Problem of the Week, due Thursday 10/12**

Show that

$$1 - \frac{1}{2} + \frac{1}{3} - \frac{1}{4} + \cdots + \frac{1}{2023} - \frac{1}{2024} = \frac{1}{1013} + \frac{1}{1014} + \cdots + \frac{1}{2024}$$

where the signs of the left hand side are alternating.