

$$\sqrt{1+1 \cdot 2 \cdot 3 \cdot 4} = 5, \sqrt{1+2 \cdot 3 \cdot 4 \cdot 5} = 11, \sqrt{1+3 \cdot 4 \cdot 5 \cdot 6} = 19, \sqrt{1+4 \cdot 5 \cdot 6 \cdot 7} = 29$$

$$\log_2 \left( \frac{1}{2} + \frac{1}{2^2} + \frac{1}{2^3} + \frac{1}{2^4} + \frac{1}{2^5} + \frac{1}{2^6} + \frac{1}{2^7} + \frac{1}{2^8} + \frac{1}{2^9} + \frac{1}{2^{10}} + \frac{1}{2^{10}} \right) = ?$$

# Math Circle @ MHS

Coached by MHS Math Club and UI Math Professor

**Purpose:** To spark interest in creative approaches to problem-solving in mathematics.

**Topic:** The theme for the day will be infinity! We will talk about how we count and develop the concept of infinity. We will also play a strategy game, which illustrates the main idea in the proof that the real numbers are bigger than the integers. Extension activities will be provided. U of I professors/students, MHS faculty, and Math Club members will be present to assist.

**Thursday, October 31st**  
**8:30-10:30 am**  
**Rm 125**  
**Moscow High School**

Activities are designed for 3<sup>rd</sup>-5<sup>th</sup> graders  
 Limited to 25 participants

**To register, contact:**

Gretchen Wissner, MHS Gifted Education Facilitator:  
*wissnerg@msd281.org*

**For more information, contact:**

Dr. Jennifer Johnson Leung of UI:  
*jenfns@gmail.com*

$$\frac{1}{2 \cdot 4} + \frac{1}{4 \cdot 6} + \frac{1}{6 \cdot 8} + \frac{1}{8 \cdot 10} + \frac{1}{10 \cdot 12} + \dots + \frac{1}{98 \cdot 100} = ?$$

$$12^2 = 8^2 + 9^2 - 1, 14^2 = 10^2 + 10^2 - 2^2, 16^2 = 12^2 + 11^2 - 3^2, 18^2 = 14^2 + 12^2 - 4^2$$