

Intermediate Level Relay Round 1A

R1-A Three dice are rolled. The probability that the sum of their points is 14 is written in the form $\frac{p}{q}$ where p and q are relatively prime, find $p + q$.

Intermediate Level Relay Round 1B

R1-B $T = \text{TNYWR}$ (The Number You Will Receive). In an acute triangle ABC with $\angle ACB = T^\circ$ point M is the midpoint of AB . If P and Q are points on BC and AC respectively such that $AP \perp BC$ and $BQ \perp AC$ find $\angle PMQ$.

Intermediate Level Relay Round 2A

R2-A Find the greatest value of $\left| |a - b - c| - c \right| + |a - b - c|$, where a, b, c are the numbers 2012, 2013 and 2014 in some order.

Intermediate Level Relay Round 2B

R2-B $T = \text{TNYWR}$ (The Number You Will Receive). Two points A and B stay at diametrically opposite points on a circle of center O . They start moving in opposite directions (A clockwise, B anti-clockwise). Point B moves twice faster than A . They meet for T -th time at some point C . Find the $\angle AOC$ in degrees.

Intermediate Level Relay Round 3A

R3-A Let $x = \sqrt{3 - \sqrt{4 + \sqrt{12}}} + \sqrt{3 + \sqrt{4 - \sqrt{12}}}$. Find $5x^2$.

Intermediate Level Relay Round 3B

R3-B $T = \text{TNYWR}$ (The Number You Will Receive). In a group of T students some pairs of students exchange presents. It is known that there are no three students A, B and C such that A and B exchange presents; B and C exchange presents; A and C exchange presents. Find the maximum number of presents given.