



Division

M

Mathematical Olympiads

December 14, 2020

for Elementary & Middle Schools

Contest

2

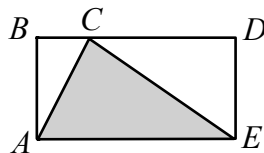
Directions to Students: After all questions have been read by your PICO, you will have 30 minutes to complete this contest. You may not have a pen or pencil in your hand while the PICO reads the set of questions to the class. Calculators are not permitted. All work is to be done on the pages provided. Answers must be placed in the corresponding boxes in the answer column.

Name: _____

2A Compute the simplified value of the product $\frac{1.01}{0.01} \times \frac{1}{.05}$.

2B Find the least whole number N so that $2020 + N$ is exactly divisible by 11.

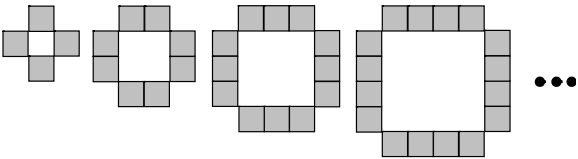
2C A triangle is inscribed in a rectangle if each vertex of the triangle lies on a side of or at a vertex of the rectangle. This diagram shows shaded triangle ACE inscribed in rectangle $ABDE$. Find the number of square units in the area of shaded triangle ACE , if the area of the rectangle is 13.5 square units.



Name: _____

Answer Column
2A
2B
2C
2D
2E
Do Not Write in this Space. For PICO's Use Only. SCORE:

2D Each figure in the sequence shown is composed entirely of 1×1 shaded squares. If the pattern is continued, how many 1×1 shaded squares will there be altogether in the first 21 figures?



– Page may be folded along dotted line. –

2E Given M and N are whole numbers. Find the greatest value of the product $M \times N$ such that each of the following is true:

- (1) $M \times N < 98$
- (2) M has exactly 2 factors
- (3) N has exactly 3 factors
- (4) M and N are relatively prime (That means they have no common factors other than 1.)

– Page may be folded along dotted line. –