Round 1, Question 1

General Instructions: In all questions after Question 1 of each round, the capital letter $TNYWR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

A snail is attempting to climb a 85cm tree. Starting from day 1, it climbs 5cm every day and falls 2cm as it sleeps every night. Every fifth night, however, the snail manages to sleep without falling. On which day does the snail reach the top of the tree?

Round 1, Question 2

General Instructions: In all questions after Question 1 of each round, the capital letter $TNYWR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

If I flip a fair coin TNYWR - 10 times, how many ways can I get exactly 2 heads?

Round 1, Question 3

General Instructions: In all questions after Question 1 of each round, the capital letter $TNYWR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

Varun wants to buy a donut that costs TNYWR cents. He only has quarters, dimes, nickels, and pennies. What is the minimum number of coins he needs to use if he must spend at least 1 penny?

Round 1, Question 4

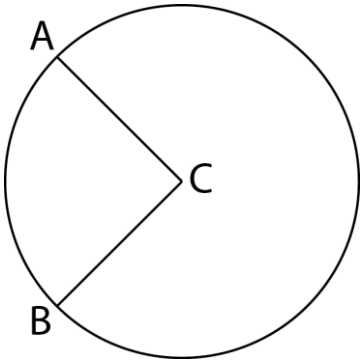
General Instructions: In all questions after Question 1 of each round, the capital letter $TNYWR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

What is the sum of the volume of a sphere with radius $TNYWR$ and the volume of a cylinder with radius $2 \times TNYWR$ and height $4 \times TNYWR$?

Round 2, Question 1

General Instructions: In all questions after Question 1 of each round, the capital letter $TNYWR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

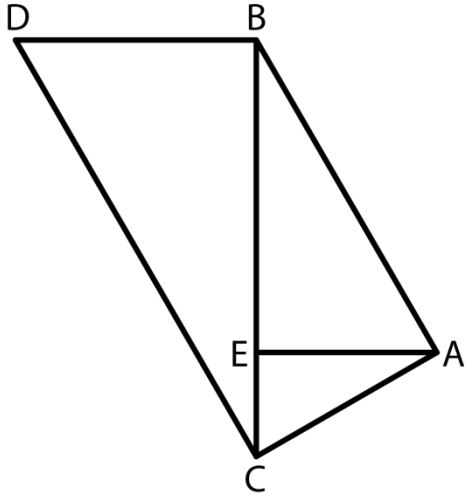
The radius of circle C is $4\sqrt{\frac{15}{\pi}}$. If arc AB has a measure of 90 degrees, what is the area of sector ACB?



Round 2, Question 2

General Instructions: In all questions after Question 1 of each round, the capital letter $TNYWR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

Triangles AEB, CEA, and DBC are similar right triangles. If angle AEB = 90°, angle EAB = TNYWR, and EA = 1, what is the length of DC?



Round 2, Question 3

General Instructions: In all questions after Question 1 of each round, the capital letter $TNYWR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

Find the rational component of $\frac{TNYWR}{3} + (\sqrt{3} + TNYWR)^2 + 3$

Round 2, Question 4

General Instructions: In all questions after Question 1 of each round, the capital letter $TNYWR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

The volume of a cone is $TNYWR \times \pi$. If the base radius is 3, what is the height of the cone?

Round 3, Question 1

General Instructions: In all questions after Question 1 of each round, the capital letter $TNYWR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

What is the largest solution to the equation $2y^2 = 2y + 40$

Round 3, Question 2

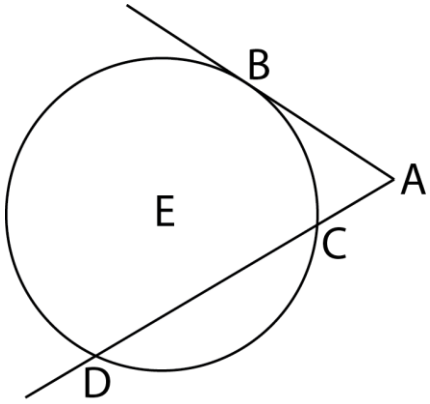
General Instructions: In all questions after Question 1 of each round, the capital letter $TNYWR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

Find the largest integer value n such that $\frac{35!}{TNYWR^n}$ is an integer.

Round 3, Question 3

General Instructions: In all questions after Question 1 of each round, the capital letter $TNYWR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

In the diagram to the right, B,C and D lie on circle E. Point A is on the outside of the circle such that D, C and A are collinear, and AB is tangent to circle E. If the length of AC is 16, and that of AB is 32, what is AD?



Round 3, Question 4

General Instructions: In all questions after Question 1 of each round, the capital letter $TNYWR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

Convert $TNYWR_{12}$ into a base 8 number.

Round 4, Question 1

General Instructions: In all questions after Question 1 of each round, the capital letter $TNYWR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

A wheel with radius $5/\pi$ rolls down an inclined ramp with length 24 and height 7. How many revolutions does it need to travel halfway down this ramp?

Round 4, Question 2

General Instructions: In all questions after Question 1 of each round, the capital letter $TNYWR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

Bob has to travel to get to work. If he walks for TNYWR miles at 5 miles per hour, buses 1 mile at 20 miles per hour, and bikes the last mile at 10 miles per hour, how much time did he take to get there, in minutes?

Round 4, Question 3

General Instructions: In all questions after Question 1 of each round, the capital letter $TNYWR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

A bug on a coordinate system starts at the origin. He can only walk in the positive X and Y direction. The bug runs back and forth between (0, 0) and (3, 3), each time traveling a different path until he has walked on all possible paths. If the bug can travel TNYWR units in 1 hour, how many hours will it take him to complete his run? (Two paths are the same if they make the same line, regardless of direction.)

Round 4, Question 4

General Instructions: In all questions after Question 1 of each round, the capital letter $TNWYR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

How many diagonals are in a polygon with TNYWR sides?

Round 5, Question 1

General Instructions: In all questions after Question 1 of each round, the capital letter $TNYWR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

The surface area of a sphere is 1/5 of its volume. What is the diameter of the sphere?

Round 5, Question 2

General Instructions: In all questions after Question 1 of each round, the capital letter $TNYWR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

5 cows can eat 400 square meters of grass in 4 days. What is the maximum number of days 3 cows can graze on a piece of grassland bounded by a square fence with side lengths measuring 30?

Round 5, Question 3

General Instructions: In all questions after Question 1 of each round, the capital letter $TNYWR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

The area of a cylinder's base is TNYWR. What is the volume of the cylinder if the height is 10?

Round 5, Question 4

General Instructions: In all questions after Question 1 of each round, the capital letter $TNYWR$ represents the answer to the previous question. Once you solve your question, write only a numerical answer on the answer sheet; do not include units.

Given:
A = the sum of edges and vertices of an octagon
B = TNYWR
C = $1^3 + 2^3 + \cdots + 8^3$
What is $A + B + C$?