

SET 1

OLYMPIAD 1

1A
3 MINUTES
79%

What number can replace the square to make the statement true?

$$5 \times 11 = \square + 12$$

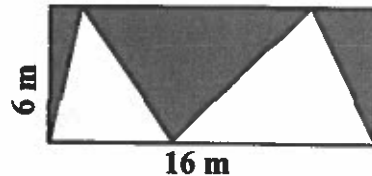
1B
6 MINUTES
16%

The sum of the 3-digit number AAA and the 2-digit number BB is the 4-digit number CD6E. A, B, C, D, and E are different digits. What 4-digit number does CD6E represent?

$$\begin{array}{r} \text{A A A} \\ + \quad \text{B B} \\ \hline \text{C D 6 E} \end{array}$$

1C
7 MINUTES
47%

What is the area, in square meters, of the shaded part of the rectangle?



1D
5 MINUTES
6%

In simplest form, the fraction $\frac{60}{N}$ represents a whole number. N is also a whole number. What is the total number of different values that N can be?

1E
5 MINUTES
24%

A bowl contains 100 pieces of colored candy: 48 green, 30 red, 12 yellow, and 10 blue. They are all wrapped in foil, so you do not know the color of any piece of candy. What is the least number of pieces you must take to be certain that you have at least 15 pieces of the same color?

Solutions start on page 132.

SET 1

OLYMPIAD 2



If two different counting numbers have the same digits but in reverse order, each number is called the palimage of the other. For example, 738 and 837 are palimages of each other; so are 1234 and 4321. What two different numbers between 40 and 60 are palimages of each other?



A cricket chirps 6 times every 8 seconds. At that rate, how many times does the cricket chirp in 2 minutes?

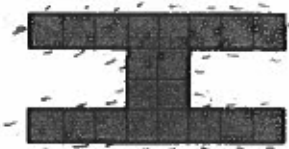


The odd numbers from 1 through 17 are placed in the magic square so that the sum of the numbers in each row, column and diagonal are equal. What number goes in the square marked "X"?

	1	
5		13
X		9



Each small region in the figure shown is a square. The area of the entire figure is 320 sq cm. What is the number of cm in the perimeter of the entire figure?



The pages of a book are numbered consecutively, beginning with 1. The digit 7 is printed 25 times in numbering the pages. What is the largest number of pages the book can have?

Solutions start on page 133.

SET 1

OLYMPIAD 3

3A
4 MINUTES
61%

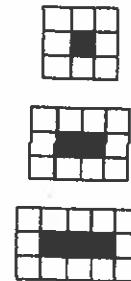
What is the greatest number of Mondays that can occur in 45 consecutive days?

3B
5 MINUTES
49%

The arithmetic mean (average) of five numbers is 8. Two of the numbers are 2 and 5. The other three numbers are equal. What is the value of one of the three equal numbers?

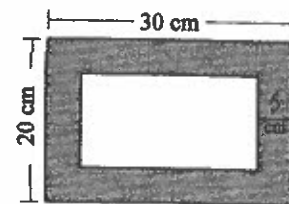
3C
6 MINUTES
46%

Each figure shown is formed by surrounding one row of black squares with white squares. How many white squares will surround one row of 50 black squares?



3D
6 MINUTES
6%

A picture frame is 20 cm by 30 cm. This includes a border (the shaded region) 5 cm wide surrounding the picture itself. What is the area of this shaded border in sq cm?



3E
6 MINUTES
11%

Two standard dice (number cubes) are rolled. One is red and one is green. What is the probability that the product of the two numbers on top is divisible by 3?

Solutions start on page 135.

SET 1

OLYMPIAD 4

4A
4 MINUTES
82%

Five students (Amy, Beth, Corey, Diego, Emily) sit in that order in a circle, counting down to 1. Amy starts by saying, "34". Then Beth says, "33", and so on. They continue around the circle to count down by ones. Who says, "1"?

4B
5 MINUTES
61%

What whole number may be used in place of \square to make this statement true?

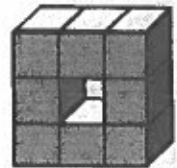
$$\frac{3}{5} < \frac{\square}{7} < \frac{4}{5}$$

4C
6 MINUTES
32%

Bay Street has from 2 through 15 houses, numbered 1, 2, 3, and so on. Mr. Sullivan lives in one of the houses. The sum of all the house numbers less than his equals the sum of all the house numbers greater than his. How many houses are there on Bay Street?

4D
6 MINUTES
13%

Eight cubes are glued together to form the figure shown. The length of an edge of each cube is 3 centimeters. The entire figure is covered in paint. How many square centimeters are covered in paint?



4E
7 MINUTES
9%

The whole number N is divisible by 7. If N is divided by 2 or 3 or 4 or 5, the remainder is 1 in each case. What is the smallest value that N can be?

Solutions start on page 137.

SET 1

OLYMPIAD 5

5A
6 MINUTES
34%

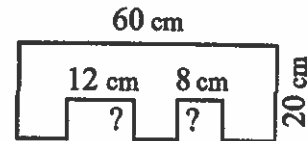
Mr. Red, Mr. White, Mr. Blue, and Mr. Gray each wears a shirt that is the same color as the name of one of the other three men. Each man wears a different color. Mr. Red and Mr. White are older than the man in gray. The man in red is next to Mr. White. Which man wears a white shirt?

5B
4 MINUTES
17%

A, B, and C represent three different numbers. Each is chosen from the set $\{3, 5, 7, 9\}$. What is the least possible value of $\frac{A}{B+C}$? Express your answer as a simple fraction.

5C
5 MINUTES
48%

Two rectangles with equal heights are cut from a rectangular piece of paper as shown. The area of the remaining piece of paper is 980 sq cm. What is the height of each cut, in cm?



(not drawn to scale)

5D
7 MINUTES
10%

Alexis bakes 90 identical pizzas. Each pizza is cut either into 8 small slices or 6 large slices. There are 5 small slices for every 3 large slices. How many of the 90 pizzas are cut into small slices?

5E
5 MINUTES
20%

Lin has 8 marbles. Each marble weighs either 20 grams or 40 grams or 50 grams. He has a different number of marbles (at least one) of each weight. What is the smallest possible total weight of Lin's marbles?

Solutions start on page 139.