2A *Time: 3 minutes*

Write as a single decimal:

$$1 - \frac{2}{10} + \frac{3}{100} - \frac{4}{1000}$$

2B *Time: 4 minutes*

Amy picks a whole number, squares it and then subtracts 1. She gives her final number to Brian. Brian adds 3 to the number Amy gave him and then doubles that result. Brian's final result is 54. With what number did Amy start?

2C *Time: 6 minutes*

Alex, Bruno, and Charles each add the lengths of two sides of the same triangle correctly. They get 27 cm, 35 cm, and 32 cm, respectively. Find the perimeter of the triangle, in cm.

2D *Time: 6 minutes*

The first three terms in a sequence are: 1, 2, 3. Each term after that is the opposite of the sum of the three previous terms. For example, the 4^{th} term is -6 (the opposite of 1+2+3), and the 5^{th} term is 1. What is the 99^{th} term?

2E *Time: 7 minutes*

Find the whole number value of

$$\sqrt{1+3+5+...+45+47+49}$$

3A *Time: 4 minutes*

When Isaac opens a book, the product of the page numbers on the open pages is 420. Find the sum of the two page numbers.

3B *Time: 5 minutes*

A squirrel buries a total of 80 acorns in N holes. Find the greatest possible value of N, provided:

(1) No hole is empty, and

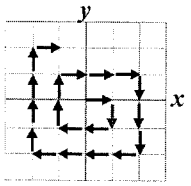
(2) No two holes contain the same number of acorns.

3C *Time: 5 minutes*

The sum of a proper fraction in lowest terms and its reciprocal equals $2\frac{4}{15}$. Find the original proper fraction.

3D *Time: 7 minutes*

The picture shows a "spiral" that begins at the origin **(0,0)** and passes through every lattice point in the plane. Each small arrow is 1 unit in length. Following the "spiral", what is the length of the path from the origin to the point **(5,3)**?



3E *Time: 7 minutes*

How many degrees are in the angle formed by the hands of a clock at 8:24?

4A *Time: 4 minutes*

Some students are in a line. Abby is in the center of the line. Sara is 3 places in front of her, Eli is 4 places behind Sara, and Kayla is 2 places in front of Eli. Kayla is the third person in line. How many students are in the line?

4B *Time: 4 minutes*

Given the data: 3, 6, 6, 8, 10, 12.

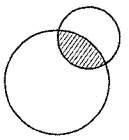
Express in lowest terms: $\frac{3\times\text{median} - \text{mode}}{6\times\text{mean}}$

4C *Time: 4 minutes*

Find the integer that exceeds $^{-}5$ by the same amount that $^{+}13$ exceeds $^{-}1$.

4D *Time: 6 minutes*

A circle with radius 5 cm intersects a circle with radius 3 cm as shown. The area of the shaded region is $\frac{7\pi}{2}$ square cm. Find the total combined area <u>inside</u> the circles, but <u>outside</u> the shaded region. Leave your answer in terms of π.



4E *Time: 8 minutes*

How many different triangles can be formed whose 3 vertices are chosen from the rectangular array of 8 points shown?

5A *Time: 4 minutes*

How many 2-digit numbers are there in which the ones digit is greater than the tens digit?

5B *Time: 5 minutes*

A bank has two plans for checking accounts. In plan A, the charge is $7.50 a month with no fee for each check. In plan B, the charge is $3 a month plus an additional 20 cents for each check written. What is the least number of checks a customer must write each month so that plan A costs less than plan B?

5C *Time: 5 minutes*

Suppose the base of a triangle is increased by 20%, and its height is increased by 30%. By what percent is the area of the triangle increased?

5D *Time: 6 minutes*

Starting with 1, Sara lists the counting numbers in order but omits all those that use the digit 9. What is the 300th number on her list?

5E *Time: 8 minutes*

Line segments form a path that starts at (0,0), is drawn to (1,0), and then to (1,2). Each new segment forms a right angle with the segment before it and is 1 unit longer than that segment. The path ends at (0,0). How many segments are in the shortest possible path?

(*Hint: Consider horizontal and vertical segments separately.*)