

# PRIME

Junior!

# math magazine

## Really Square

In the set of counting numbers 1 through 100:

1. Which pairs of square numbers add to a square number?

A. \_\_\_\_\_ B. \_\_\_\_\_ C. \_\_\_\_\_

2. Which pair of cubic numbers adds to a square number?

\_\_\_\_\_

3. Which square number is also a cubic number?

\_\_\_\_\_

4. Which pairs of odd numbers add to a square number when one odd number is 1?

A. \_\_\_\_\_ B. \_\_\_\_\_ C. \_\_\_\_\_ D. \_\_\_\_\_ E. \_\_\_\_\_

5. Which pairs of odd numbers add to a square number when one odd number is 5?

A. \_\_\_\_\_ B. \_\_\_\_\_ C. \_\_\_\_\_ D. \_\_\_\_\_

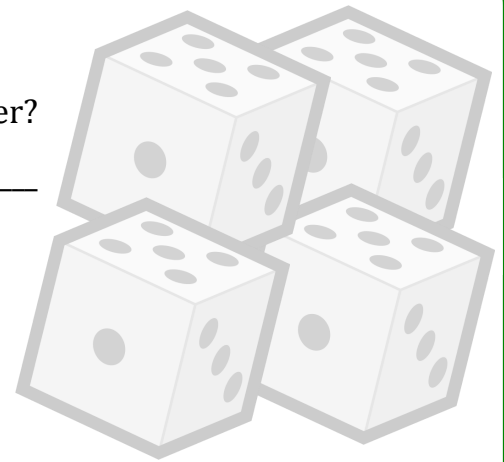
6. Which pairs of consecutive counting numbers add to a square number?

A. \_\_\_\_\_

B. \_\_\_\_\_

C. \_\_\_\_\_

D. \_\_\_\_\_



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**PRIME**  
CENTER

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## Invention Date—um!

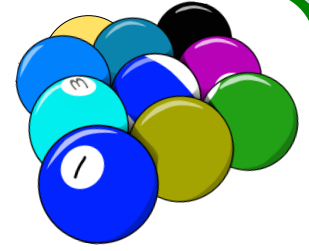
Use the charts to identify the years. Clues are by letter and the invention.

- |   |  |
|---|--|
| A. Parker Brothers introduced Monopoly after purchasing it from the inventor, Charles Darrow, in _____. | B. Carl Magee invented the first parking meter in _____.                         |
| C. Mickey Mouse made his debut in the movie <i>Steamboat Willie</i> in _____.                           | D. Richard James, a naval engineer, invented the Slinky in _____.                |
| E. Scotch tape was invented by engineer Richard Drew in _____.  | F. William Frederick Morrison and Warren Frisconi invented the Frisbee in _____. |
| G. Erno Rubik invented the Rubik's Cube in _____.   | H. Ruth Handler invented the Barbie doll in _____.                               |

### Clues

- A. The ones and tens digits of the year are the first two perfect numbers.
- B. The sum of all four digits is 15. Both the tens and ones digits are prime numbers. The year number is an even number.
- C. The sum of the thousands and hundreds digits is equal to the sum of the tens and ones digits. The tens digit is the cubic root of the ones digit.
- D. The two-digit number formed by the tens and ones digit is a prime number. The tens digit is one more than the ones digit. The sum of all four digits is 17.
- E. The sum of the four digits of the year is 13. The year number is a multiple of 10.
- F. The tens digit is half the ones digit. The two-digit number formed by the tens and ones digits is a multiple of 16. The year is in the first half of the 20th century.
- G. The sum of the four digits of the year is 21. The tens digit is one less than twice the ones.
- H. The hundreds and the ones digits are the same. The tens digit is a multiple of 5.

## Greatest—Least



Use all of the numbers, 0-9, in each example,

1. Fill in the rectangles to give the greatest sum.

$$\left( \begin{array}{|c|c|c|} \hline & & \\ \hline \end{array} + \begin{array}{|c|c|c|} \hline & & \\ \hline \end{array} + \begin{array}{|c|c|c|} \hline & & \\ \hline \end{array} \right)^{\square} = \underline{\hspace{2cm}}$$

2. Fill in the rectangles to give the least sum.

$$\left( \begin{array}{|c|c|c|} \hline & & \\ \hline \end{array} + \begin{array}{|c|c|c|} \hline & & \\ \hline \end{array} + \begin{array}{|c|c|c|} \hline & & \\ \hline \end{array} \right)^{\square} = \underline{\hspace{2cm}}$$

## Conversion Complication

Use all of the numbers 1-6. Fill in each rectangle to make the statement true.

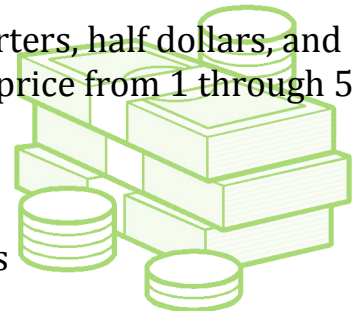
$$\square \times \square = \frac{\begin{array}{|c|c|} \hline & \\ \hline \end{array}}{\begin{array}{|c|c|} \hline & \\ \hline \end{array}}$$



## No Change

What is the fewest number of pennies, nickels, dimes, quarters, half dollars, and one dollar bills you need to purchase any item, ranging in price from 1 through 5 dollars, **AND** receive no change?

\_\_\_\_\_ pennies    \_\_\_\_\_ nickels    \_\_\_\_\_ dimes  
 \_\_\_\_\_ quarters    \_\_\_\_\_ half dollars    \_\_\_\_\_ one-dollar bills



# βαζανθς

**Balzano** is a puzzle that will tap into your logical reasoning abilities. Read the directions carefully, then try your hand at Balzano Shapes.



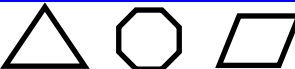
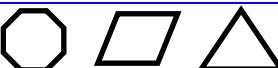

**Directions:**

Your job is to figure out the Desired Arrangement (the solution) of three elements (shapes) from clues that provide information about the shapes and their locations. The possible shapes are **octagon, parallelogram, trapezoid, and triangle**. No shape may be repeated.

The **Arrangement Column** shows sets of shapes in rows. In the Balzano puzzle below, the second row, arranged in order from left to right, is: parallelogram, triangle, and octagon.

**Correct Shape in the Correct Place** identifies the number of elements that are the correct shape AND are in the right place. The second row has one shape in the right place.

**Correct Shape in the Wrong Place** identifies the number of correct shapes BUT in the wrong place. There is 1 of these in the second row.

Arrangement	Correct shape in correct place	Correct shape in wrong place	Incorrect shape
	0	2	1
	1	1	1
	0	2	1
	2	2	2
	0	2	1