PRIME ma+ʰgazine

Volcanic Disasters

On August _____, _____, one of the most catastrophic
    (A)   (B)

volcanic eruptions occurred on the island of Krakatoa, between

Java and Sumatra. It is part of the Indonesian Island Arc.

Explosions were heard about _____ miles away. The first blast
    (C)

sent a cloud of gas and debris about _____ Tsunami were
    (D)

created by the volcano's collapse into the sea. One wall of

water reached a height of about _____ feet!
    (E)

On May _____, _____, Mount St. Helens, located in the
    (F)   (G)

state of Washington in the U.S., erupted. The first eruption sent

a column of ash and steam _____ feet into the air. Ash continued
    (H)

to erupt for _____ hours. An estimated _____ million tons of ash
    (I)   (J)

drifted over _____ U.S. states. In terms of economic impact, it is
    (K)

considered to be the most destructive of all U.S. volcanic eruptions.

Use the clues to complete the story.
Clues:

A: $2^3 \times 9 \div 3 + 2$

B: Nineteenth century year. The sum of its digits is 20. The hundreds and tens digit are the same.

C: 3×10^3

D: The tens digit is a factor of all numbers.

   Product of the two digits is 5.

E: Number of inches in 10 feet

F: D + (first odd prime number).

G: Twentieth century date.

   The tens digit is one less than the

   hundreds digit.

   The product of the digit is zero.

H: Number of feet one mile + $(8 \times 9 \times 10)$.

I: $1^{81} \times \sqrt{81}$.

J: Number of feet in a fathom $\times\ 3^2 \times 10^1$.

K: $7^0 \times 7^1$.

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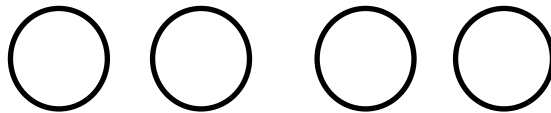Jason Luc
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Square Sums

Use the clues to fill in numbers in the 4-by-4 square.
Then add across and down. Record sums in circles.

A	B	C	D
E	F	G	H
I	J	K	L
M	N	O	P

Clues

A= 2G

B= L^2

C= 40% of 80

D= G + L

E= $\sqrt{121}$

F= E $\div$ 5

G= $2^3 \div 2^2 - \frac{1}{2}$

H= The smallest perfect number

I= $\frac{9}{10}$ x G

J= Triangular number < 3

K= $|-7| + 8$

L= $\sqrt{2.25}$

M: Factor of all numbers

N: Number of keys on a piano

O: Number of feet in a fathom

P: Number of pints in a gallon

Money's Worth

Size of U.S. Currency:
$6\frac{1}{8}$ inches long and $2\frac{5}{8}$ Inches wide

I. $5 bills are placed end-to-end to form a line from Flagstaff to Tucson, a distance of 209 miles (by air). The value of the line of bills, to the nearest dollar, is $ _____.

II. a. A line of $20 bills, stretching from Phoenix to Sedona, is 115.8 miles long and has a value of $_____.

  b. That amount is $_____ more than a line of $20 bills stretching from Phoenix to Mesa, a distance of 19.3 miles.
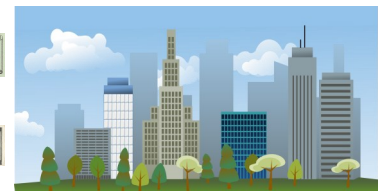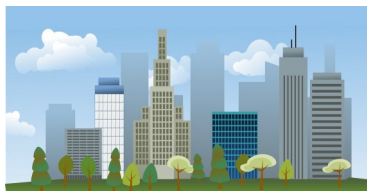
French Folding

A rectangular piece of paper, dimensions l by w, is folded to form 2 rectangles. Each of the smaller rectangles is $\frac{1}{2}$ l by w. The sheet is then folded along its length to form 4 rectangles, dimensions $\frac{1}{2}$ l by $\frac{1}{2}$ w. This process continues. This folding process is called French folding.

1 fold   Sheet opened   2 folds   Sheet opened
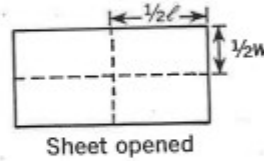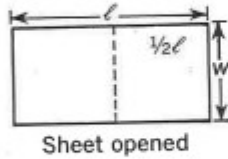
1. By actual folding, at most 5 folds can be accomplished.
   For 5 folds:
   a. How many of the smallest rectangles are created?_____
   b. What are the dimensions of each of those smallest rectangles?_____

2. Although not physically possible,
   what would be the total number of smallest rectangles after
   a. 6 folds?_____
   b. 8 folds? _____

βαιΖαΝθς

Balzano is a puzzle that will tap into your logical reasoning abilities. Read 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 **parallelogram, pentagon, square, triangle, trapezoid.** 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, pentagon, triangle.

Correct Shape in the Correct Place identifies the number of elements that are the correct shape AND 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 one of these in the second row.

Incorrect Shape identifies the number of shapes that do not belong in the arrangement. There is one of these in the second row.

	Correct Shape/ Correct Place	Correct Shape/ Wrong place	Wrong shape/ Wrong place
△ △ □	0	1	2
▱ ⌂ △	1	1	1
□ ▱ ▱	1	1	1
△ △ ⌂	1	1	1
△ ▱ ▱	1	1	1
	3	0	0