PRIME ma+h gazine Junior!

The Wizard of Oz

On August _____(A), _____(B), L. Frank Baum, got a copyright for his book, *The Wonderful Wizard of Oz*. In _____(C), the book was turned into a musical drama and a film was produced. The star of the film, who played the role of Dorothy, was Judy Garland. Judy was _____(D) years old. The movie was not successful. In _____(E), CBS showed the film on television and it became an instant success. In _____(F), one pair of red shoes, worn by Dorothy, sold at auction for $_____(G)!

Use the clues to complete the story.

Clues

A. Factor of all numbers
B. 20th century date. Sum of the digits is 10.
C. All digits of this early 20th century date are powers of 3. The hundreds and ones digits are the same. The sum of the digits is 22.
D. 2^4
E. 20th century date. The ones digit is a perfect number. The sum of the digits is 21.
F. 21st century date. Sum of the digits is the only even prime number.
G. The sum of the digits of this 6-digit number is 18. The hundred thousands, ten thousands, and thousands digits are the same.

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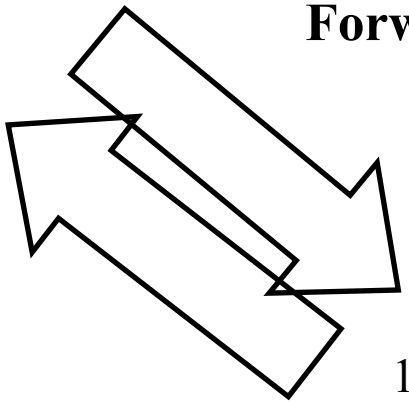
Mathematical Daze!

In each month with 31 days, how many of the day numbers are:

	Total Number	Name the Numbers
1. Prime?	_____	_____
2. Triangular?	_____	_____
3. Square?	_____	_____
4. Powers of 2?	_____	_____
5. Powers of 3?	_____	_____
6. Perfect?	_____	_____
7. Abundant?	_____	_____
8. Deficient?	_____	_____

Forward-Backward Pattern



$$1 \times 8 + 1 = 9$$
$$12 \times 8 + 2 = 98$$
$$123 \times 8 + 3 = 987$$
$$1234 \times 8 + 4 = 9876$$
$$12345 \times 8 + 5 = 98765$$
$$123456 \times 8 + 6 = \_\_\_\_\_$$
$$1234567 \times 8 + 7 = \_\_\_\_\_$$
$$12345678 \times 8 + 8 = \_\_\_\_\_$$
$$123456789 \times 8 + 9 = \_\_\_\_\_$$

Study the completed examples. Then look for patterns and record the missing sums.

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Decimal Square

		3.2	
	40		

×0.8 (going up ↑)

×0.1 (going across →)

Complete the decimal square.

- **Multiply by 0.1 going across →**
- **Multiply by 0.8 going up ↑**

Digit Dilemma

Write the missing digits in the □s.

		□	2	□
□2)	7	□	8	□
−	□	2		
	1	4	□	
−	□	2	4	
		2	4	□
	−	2	4	8
				0

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βαιZαNθς

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

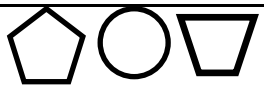
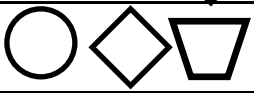
Directions:
Your job is to figure out the Desired Arrangement (the solution) of three elements (shapes) from clues that provide information about the shapes and their locations. The possible shapes are **circle, pentagon, square, trapezoid, triangle.** No shape may be repeated.

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: pentagon, circle, trapezoid.

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 are none of these in the second row.

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

	Correct Shape/ Correct Place	Correct Shape/ Wrong place	Wrong shape/ Wrong place
	2	0	1
	1	0	2
	2	0	1
	0	2	1
	3	0	0

