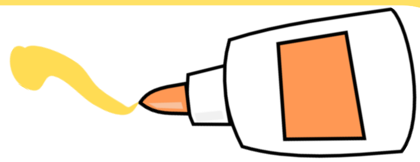
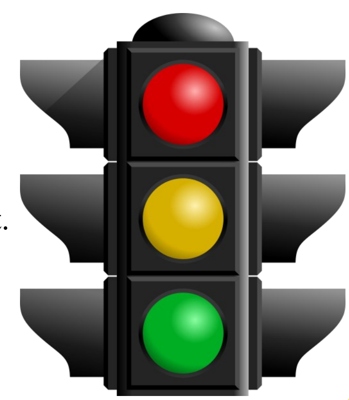
PRIME math gazine Junior!

November Inventions



Use the clues to complete the history of inventions.

On November ________, ________, Trivial Pursuit was invented and registered as a board game.
A B
Almost 26 years earlier, on November ________, ________, Kermit the Frog, the first Muppet was
C D
copyright registered. Three years before Kermit, on November ________, ________, Elmer's glue was
E F
trademark registered. On November ________, ________, Garrett Morgan received a patent for his
G H
design of a traffic signal.



Clues

A. 2^3+2^1

B. Twentieth century year. The hundreds digit is one more than the tens digit. The sum of the digits is 19.

C. Even prime number

D. Tens and ones digits are the same. Sum of the digits is 20.

E. 3 times a perfect number

F. Twentieth century year. Tens and ones digits are prime numbers. The tens digit is 3 more than the ones digit. Sum of the digits is 17.

G. $2^2\times5^1$

H. Twentieth century year. The tens and ones digits form the least 2-digit prime number greater than 20

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Happy Numbers

Here's how to figure out if a number is Happy!

Let's try it with the number 32.

Step 1: Square each digit and add: $32 \rightarrow 3^2+2^2=9+4$, or 13

Step 2: Square each digit of the sum and add: $13 \rightarrow 1^2+3^2=1+9$, or 10

Step 3: Square each digit of the sum and add : $10 \rightarrow 1^2+0^2=1+0$, or 1

If the Sum is 1, then your starting number is Happy!

32 is a Happy Number!!!

There are two Happy Numbers between 40 and 50. What are they?

1. ________ 2. ________

Make the Change

Use the clues to figure out the types and numbers of U.S. coins in each collection.

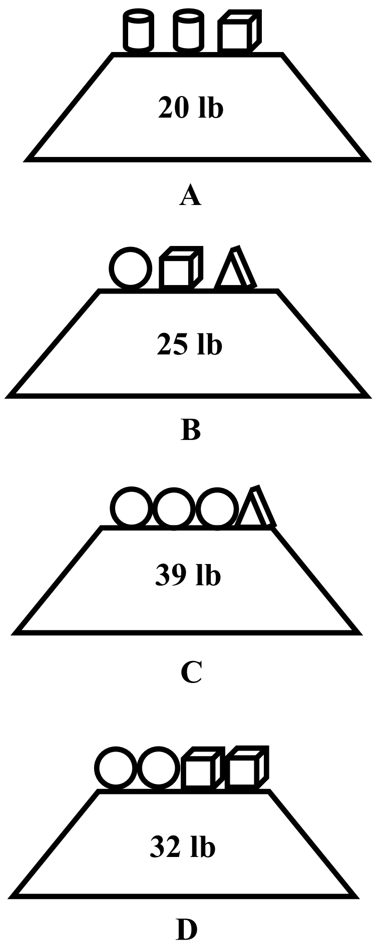
1. You have \$1.75 in nickels and dimes. There are $\frac{2}{3}$ as many dimes as nickels.
You have ____________ dimes, and ____________ nickels.

2. You have \$1.35 in quarters, dimes, and nickels. There are $\frac{1}{4}$ as many quarters as dimes.
There are $\frac{1}{2}$ as many nickels as quarters.
You have ____________quarters, ____________ dimes, and ____________ nickels.

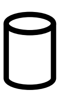
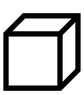
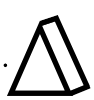
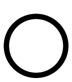
3. You have \$2.75 in half dollars, quarters, dimes, and nickels. There are the same number of half dollars as quarters. There are twice as many dimes as nickels. The number of dimes is $1\frac{1}{3}$ the number of half dollars.
You have ____________ half dollars, ____________ quarters, ____________ dimes,
and ____________ nickels.

Weighty Problems

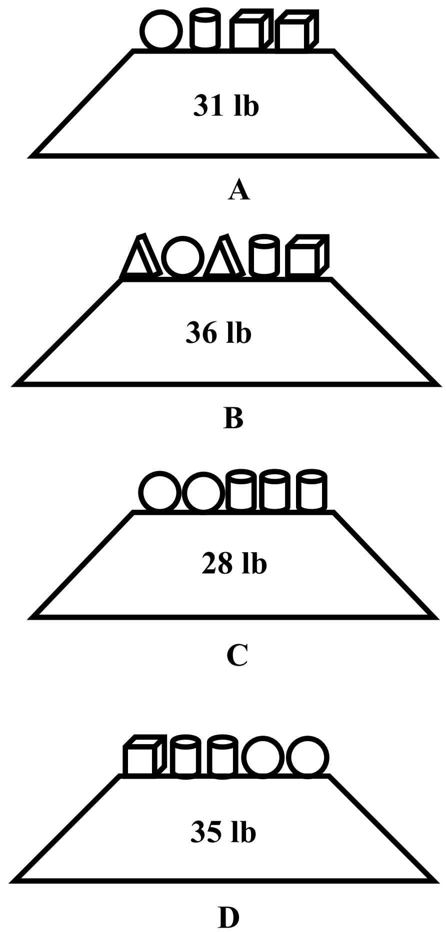
I.



Same blocks weigh the same.
Different blocks have different weights.

1.  is _______ lb
2.  is _______ lb
3.  is _______ lb
4.  is _______ lb

II.



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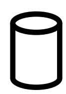
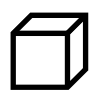
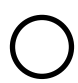
1.  is _______ lb
2.  is _______ lb
3.  is _______ lb
4.  is _______ lb

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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, 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: pentagon, square, circle.

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
○ △ □	1	2	0
⬠ □ ○	1	1	1
□ ○ ⬠	1	1	1
⬠ △ ○	2	0	1
○ ⬠ □	0	2	1
	3	0	0

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