Vowels: (mod 5) Vowel(and y)s: (mod 6)

Consonants: (mod 21) Consonant(not y)s: (mod 20)

1. For each number, list 4 equivalent numbers of the same type

1 (mod 5):

1 (mod 6):

1 (mod 21):

1 (mod 20):

40 (mod 5):

40 (mod 6):

40 (mod 21):

40 (mod 20):

2. For any number $x \pmod{n}$, there is a unique number y between 1 and n with $x \equiv y \pmod{n}$. This number is called the **standard representative** of the number. Find this number y for each x:

0 (mod 5): 0 (mod 6):

0 (mod 21): 0 (mod 20):

-1 (mod 5): -1 (mod 6):

-1 (mod 21): -1 (mod 20):

40 (mod 5): 40 (mod 6):

40 (mod 21): 40 (mod 20):

3. For each arithmetic problem, write down the standard representative of the answer.

$2 + 3 \pmod{5}$ $2 + 3 \pmod{6}$

$2 + 30 \pmod{5}$ $2 + 30 \pmod{6}$

$2 \times 30 \pmod{5}$ $2 \times 30 \pmod{6}$

$11 + 22 \pmod{5}$ $11 + 22 \pmod{6}$

$11 \times 22 \pmod{5}$ $11 \times 22 \pmod{6}$

4. For each number, list ALL standard representatives of numbers that work:
(a) Which numbers double to 2 (mod 5):

(b) Which numbers double to 2 (mod 6):

(c) Which numbers double to 1 (mod 5):

(d) Which numbers double to 1 (mod 6):

(e) How many answers can there be?

(f) How do you tell how many answers there are?

(g) How do consonants (mod 21) and consonant(y)s (mod 20) work?

5. For each number, list ALL standard representatives of numbers that work:
(a) Triple to 3 (mod 5):

(b) Triple to 3 (mod 6):

(c) Triple to 1 (mod 5):

(d) Triple to 1 (mod 6):

(e) Triple to 2 (mod 5):

(f) Triple to 2 (mod 6):

(g) How many answers can there be?

(h) How do you tell how many answers there are?

(i) How do consonants (mod 21) and consonant(y)s (mod 20) work?

6. Instead of triple, maybe it is quadruple, quintuple, or even multiply by 23.
(a) How many answers can there be?

(b) How do you tell how many answers there are?