

1. Give standard representations for each arithmetic problem (preferably without a calculator):

$$2 + 3 \pmod{21}$$

$$2 \times 3 \pmod{21}$$

$$20 + 30 \pmod{21}$$

$$20 \times 30 \pmod{21}$$

$$6 \times 3 \pmod{5}$$

$$22 \times 17 \pmod{21}$$

$$181 + 212 \pmod{10}$$

$$181 + 212 \pmod{100}$$

$$181 \times 212 \pmod{10}$$

$$181 \times 212 \pmod{20}$$

2. For each number from 1 to 5, decide whether it is zero, a zero divisor, or a unit mod 5

3. List 3 different units mod 20

4. Find a partner. Secretly (from your partner) write down a number between -5 and 5 (not 0). Have your partner do the same. Take your number and (secretly) multiply it by 6. Tell your partner the **standard representative** of your number $\pmod{11}$.

Write down what your partner said here:

Now take what your partner said, multiply it by your first secret number, and write down its standard representative $\pmod{11}$. Keep your work secret, but write down the answer here:

When your partner is ready, together say “1, 2, 3,” and then say your last answer out loud.