Problem (3-4)

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Problem 3

1.0/1.0 point (graded)

Assume that integers $A, B,$ and C satisfy the following:

$$(4+4)-6 \equiv A \pmod 7 \qquad 0 \le A \le 6$$
$$3 \times 6 + 4 \times 5 \equiv B \pmod 7 \qquad 0 \le B \le 6$$
$$2^5 \equiv \pmod 7 \qquad 0 \le C \le 6$$

Find $A, B,$ and C.

$A =$ 2 ✔ **2**

$B =$ 3 ✔ **3**

$C =$ 4 ✔ **4**

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Problem 4

1.0/1.0 point (graded)

Fill an integer in each blank.

Typesetting math: 100%

2 ✔ is the multiplicative inverse to $4 \pmod 7$.

2

3 ✔ is the multiplicative inverse to $3 \pmod 8$.

13 ✔ is the multiplicative inverse to $7 \pmod{15}$.

If $1 \leq A, B \leq N-1$ satisfy $A \times B \equiv 1 \pmod N$, we say B is the multiplicative inverse to $A \pmod N$. The multiplicative inverse exists if N is a prime number. If N is not a prime number, the multiplicative inverse may or may not exist.

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