V1.

N1.

$3x + 7 \equiv 11 \mod 14$

$3x \equiv 4 \mod 14$

$3x \equiv 18 \mod 14$

$x \equiv 6 \mod 14$

N2.

$\chi a + \beta b = \gcd(a, b) \qquad a, b \in \mathbb{Z}$

$3 \cdot 4 + 11 \cdot (-1) = 1 \cdot \text{find } 3^{-1} \in \mathbb{Z}$

$d = 3 \qquad \beta = 11$

$x = \frac{1}{3} c \mod 11 \qquad\qquad ax = b \mod n$

$3x \equiv c \mod 11$

$3 \cdot 8 \cdot \qquad \gcd(3, 11) = 1$

N3.

$A \cdot B \mod c \qquad\qquad \cancel{te} \quad c = 12$

B values through $c - 1$

$A \cdot B \mod c = 1 \qquad\qquad B$ is redundant

N4.

$6x \equiv 5 \bmod 10$

$6x \equiv 15 \bmod 10$

$\gcd(6, 15) = 1.$

15 not devided to 6 for that it's

no solution.

N5

$P(A) = \frac{1}{2}$ $P(B) = \frac{1}{2}$

$P(A \cup B) = \frac{1}{100}$

$P(A \cup B) \cdot P(B) \cdot P(A) = \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{100} = \frac{1}{400}$

N6

$P(A) = \frac{1}{3}$ $p(B) = \frac{1}{3}$ $\bigg|$ $P(A \cup B) = \frac{1}{12}$

$\dfrac{P(A \cup B) = \frac{1}{12}}{P(A|B) = ?}$ $\bigg|$ $\frac{1}{12} = P(A|B) \frac{1}{3} \cdot \frac{1}{3}$

$\boxed{P(A|B) = \frac{1}{\cancel{6}12} \cdot \frac{3}{1} = \frac{3}{4}}$

$\frac{1}{12} = x \cdot \frac{1}{3} = \frac{1}{12} \cdot \frac{3}{1} = x$

$P(A|B) = \frac{1}{4}$