CRT

$$x \equiv 2 \pmod 3$$
$$x \equiv 4 \pmod 5$$
$$x \equiv 5 \pmod 7$$

$$
\begin{aligned}
a_1 &= 2 \\
a_2 &= 4 \\
a_3 &= 5
\end{aligned}
\quad\bigg|\quad
\begin{aligned}
m_1 &= 3 \\
m_2 &= 5 \\
m_3 &= 7
\end{aligned}
$$

$$M = m_1 m_2 m_3 = 3 \times 5 \times 7 = 105$$

$$M_1 = \frac{M}{m_1} = \frac{105}{3} = 35$$

$$M_2 = \frac{M}{m_2} = \frac{105}{5} = 21$$

$$M_3 = \frac{M}{m_3} = \frac{105}{7} \quad 15$$

Sol^n,

$$x = a_1 M_1 y_1 + a_2 M_2 y_2 + a_3 M_3 y_3 \pmod M \longrightarrow \text{①}$$

$$M_1 y_1 \equiv 1 \pmod{m_1}$$
$$35 y_1 \equiv 1 \pmod 3$$
$$2 y_1 \equiv 1 \pmod 3$$
$$4 y_1 \equiv 2 \pmod 3$$
$$\therefore y_1 = 2 \pmod 3$$
$$\boxed{y_1 = 2}$$

$$M_2 y_2 \equiv 1 \pmod{m_2}$$
$$21 y_2 \equiv 1 \pmod 5$$
$$1 y_2 \equiv 1 \pmod 5$$
$$\boxed{y_2 = 1}$$

$$M_3 y_3 \equiv 1 \pmod{m_3}$$
$$15 y_3 \equiv 1 \pmod 7$$
$$1 y_3 \equiv 1 \pmod 7$$
$$\boxed{y_3 = 1}$$

Put in eq^n 1

$x = (2 \times 35 \times 2 + 4 \times 21 \times 1 + 5 \times 15 \times 1)(\mod 105)$

$= 140 + 84 + 75 \quad (\mod 105)$

$= 299 (\mod 105)$

$\therefore x = 89 \mod 105$

Also $x = 89 + 105 k$ is also sol^n

where $k = 0, 1 \dots$

U can check ur answer

$89 \equiv 2 (\mod 3)$

$89 - 2 = \sout{==mod 3}$

$= \frac{87}{3} = 29$

$89 \equiv 4 \mod 5$

$= \frac{89-4}{5} = 17$

$89 \equiv 5 \mod 7$

$\frac{89-5}{7} = \frac{84}{7} = 14$

Put value in M :

$2 = \left(\frac{x \equiv 2 \mod 3}{3} \right)$

$15 = \frac{201}{2} = M_1$

$21 \quad \frac{2d}{5} \quad \frac{M}{m}$

So divisible