- CT ratios
- Inrush
- Phase Shift

\[ \text{KCL:} \overrightarrow{I_{R_1}} + \overrightarrow{I_{R_2}} + \overrightarrow{I_{op}} = 0 \]
\[ \overrightarrow{I_{op}} = \frac{\overrightarrow{I_{R_1}} \cdot \overrightarrow{I_{R_2}}}{\overrightarrow{0}} \]
→ Phvex Connecton is done, my Vd are different.

TAP SETTING
INRUSH

\[ J_{IR} = |I_{i1} - I_{i2}| \]

Why not zero? Mm ppm

Shape mismatch.

\[ \text{man}(I_{i1}, I_{i2}) \]

IR
Match phase angle

Match current magnitude
"Reconcile":

Mag ✓
phase Ang ✓
Example 1: Sec lags Pri by 150°.
Notes: 1) Source is not drawn/oriented to match voltage phasor diagram (pos seq).
2) Load is oriented to match pos seq V's.
Power Conn
(Line Currents)

CT SEC
Example 2: Sec lags Pri by 90°
See Also: Sections 9.6 & 9.8 in text.
Another way to do "bookkeeping"
\[ V_{A1} = V_1 (1/30^\circ) \]

PRI POS SEQ VOLTAGES

SEC POS SEQ VOLTAGES

\[ I_{A1} = I_{AB1} - I_{CA1} \]

PRI POS SEQ CURRENTS

SEC POS SEQ CURRENTS

\[ V_{A2} = V_2 (1/-30^\circ) \]

PRI NEG SEQ VOLTAGES

SEC NEG SEQ VOLTAGES

\[ I_{A2} = I_{AB2} - I_{CA2} \]

PRI NEG SEQ CURRENTS

SEC NEG SEQ CURRENTS

ANSI STANDARD 30-DEGREE SHIFT DELTA-WYE